

# PATENT ABSTRACTS OF JAPAN

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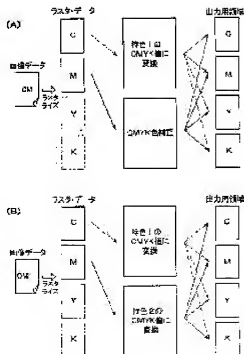
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## (54) METHOD AND APPARATUS FOR IMAGE PROCESSING

(57)Abstract:

**PROBLEM TO BE SOLVED:** To realize proper printing-out based on image data or plot data when performing a two-color print simulation using specific colors different from process colors.

**SOLUTION:** When replacing an arbitrary color in the process colors with a specific color different from the process colors, for example, CMYK values are converted while using raster data of the process colors with a color replacement set thereto and the CMYK values of the specific color to generate raster data for each color. The resultant raster data are combined with the remaining colors of the process colors or with the separately replaced raster data for each color. In this case, time a color correction can be applied to the raster data of the remaining colors of the process colors to form an image in a suitable color at low cost.



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**CLAIMS**

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[Claim(s)]

[Claim 1]When it is an image processing method which performs image processing to image data or drawing data inputted from an image processing terminal and color substitution and a replacement color are set up about either of the process colors on said image data or drawing data, An image processing method transposing sexual desire news of said replacement color memorized beforehand to sexual desire news of an applicable process color on said image data or drawing data, and generating new sexual desire news.

[Claim 2]When color substitution and a replacement color are set up about each of two or more process colors on said image data or drawing data, The image processing method according to claim 1 generating new sexual desire news by transposing sexual desire news of said replacement color memorized beforehand to sexual desire news of an applicable process color on said image data or drawing data, and compounding replaced sexual desire news.

[Claim 3]The image processing method according to claim 1 or 2 compounding said replaced sexual desire news with sexual desire news of other process colors on said image data or drawing data, and generating new sexual desire news.

[Claim 4]An image processing device which performs image processing to image data or drawing data inputted from an image processing terminal, comprising:

An image processing means which performs predetermined image processing to said image data or drawing data.

A memory measure which memorizes sexual desire news of a different replacement color from a process color set up beforehand.

A permutation means which reads sexual desire news of a replacement color from said memory measure, and is transposed to sexual desire news of a process color of a replacing agency when color substitution is set up about either of the process colors on said image data or drawing data.

A creating means which generates the new sexual desire news of said image data or drawing data based on sexual desire news replaced by said permutation means.

[Claim 5]When color substitution is set up about a process color of plurality [ permutation means / said ] on said image data or drawing data, The image processing device according to claim 4 when reading sexual desire news of a replacement color from said memory measure and transposing to sexual desire news of each process color of a replacing agency, wherein said creating means compounds each sexual desire news replaced by said permutation means.

[Claim 6]The image processing device according to claim 4 or 5, wherein said creating means compounds sexual desire news replaced by said permutation means, and sexual desire news of other process colors on said image data or drawing data.

[Claim 7]An image processing device given in any 1 paragraph of claim 4 to claim 6 by which a setting-out means to choose or input and to set a replacement color sexual desire news is remembered to be from a process color on said image data or drawing data as a color which performs color substitution, and said memory measure being included in said image processing terminal.

[Claim 8]A color correction means to perform color correction to a process color on said image data or said drawing data is included, An image processing device given in any 1 paragraph of claim 4 to claim 7 after said creating means's performing color correction to other process colors on said image data or drawing data by said color correction means, wherein it compounds sexual desire news of a replacement color replaced by said permutation means.

[Claim 9]A field for an output which stores sexual desire news of a replacement color in said image processing portion, and a field for color correction which stores sexual desire news of a process color besides the above on said image data or drawing data are provided, The image processing device according to claim 8 compounding with sexual desire news which performs color correction to sexual desire news stored in said field for color correction, and is stored in said field for an output by said color correction means.

[Claim 10]When generating raster data for every process color by said image processing portion, raster data are generated based on sexual desire news of raster data of a process color in which said color substitution was set up, and said replacement color, An image processing device given in any 1 paragraph of claim 4 to claim 9 compounding with raster data based on sexual desire news of other colors of said process color.

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**DETAILED DESCRIPTION**

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[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention relates to an image processing method and an image processing device when outputting image data to the output unit which forms the picture according to the image data for process printing in a recording form.

[0002]

[Description of the Prior Art]DTP(Desktop Publishing)-ization has permeated as digitization in the field of a printing job. DTP on processing units, such as a personal computer and a workstation, By performing creation of a picture, processing, edit, etc., create a page layout and the film for exposing a printing plate based on this page layout is created, or it writes in (CEPS) and a printing plate directly, and the lithographic plate for printing is created (CPT:Computer to Plate).

[0003]On the other hand, when performing proofreading etc. in advance of printing using a actual lithographic plate, the printout of the page layout displayed on the monitor is carried out with printout devices, such as a page printer, using a WYSIWYG function etc.

[0004]By the way, in the usual color printing, although carried out using four colors (process color) of cyanogen, magenta, yellow, and black, it may be carried out using the ink of a color (it is hereafter considered as the "special feature") different if needed from a process color.

[0005]In order to hold down printing cost in recent years, two color prints may be performed. At this time, special effects may be acquired by using one color and the special feature in a process color, or making two colors into the special feature.

[0006]On the other hand, when creating the output data for two color prints on a client computer, even if it is going to use the special feature, on the application for the present DTP, it is almost the case which can specify crossing of the special feature, the special feature or the special feature, and a process color, and is not. For this reason, as for the data for two

color prints, it is common to carry out a film output using two colors of a process color.

[0007]When using the process color, crossing of a color could also be specified easily, but since only the output in a process color was obtained when it outputs to the usual image processing device, it was difficult to check clearly what kind of result actual printed matter becomes.

[0008]In order to solve such a problem, on the client computer, conversion application is used and the method of generating the data for an output check independently and carrying out a printout is used.

[0009]In this method, in the document data created, for example with DTP application, By changing the document of process color 2 color into the color near two colors using the special feature by extracting the pattern of the field where color information is defined, and rewriting color information, A color comp output which used the special feature is made to be obtained even from the document data created using process color 2 color.

[0010]However, using conversion application by the client computer side will create different data to a color comp output, and it will be complicated [ data management ]. Since the overprint and trapping information on source data will be lost if the data itself created with application is changed, simulations, such as overprint and trapping, cannot be performed.

[0011]On the other hand, the method of applying the special profile for 2 color prints to the management function of CMYK is indicated (for example, refer to patent documents 1.).

[0012]In this method, a color chart is actually printed using a lithographic plate using the color ink which is due to be used by two color prints, By measuring this color chart, create the profile for the special features (look-up table of  $CMYK-L^*a^*b^*$ ), and The profile for these special features, The profile for printers (look-up table of  $L^*a^*b^*-CMYK'$ ) is used, and it is made to perform the simulation of a color print by realizing  $CMYK-C'M'Y'K'$  conversion using a color management function.

[0013]However, in this method, the color chart obtained with the combination of two colors to be used must be printed using actual color ink, the side color of that chart must be carried out, and a profile must be created. Whenever the preparing work of such a profile changes the color to be used, it must be performed, and in the first proof, creation of a new profile has a problem that a great labor, time, expense, etc. must be spent to change the special feature unlike the assumed result.

[0014]That is, in the method currently indicated with said patent documents 1, if the combination of the color to be used is changed, in order to obtain a proof, it will be equivalent to the case where a flat-display-case proofreading machine etc. are used, or the labor beyond it, time, expense, etc. will be needed.

[0015]

[Patent documents 1] JP,2000-62253,A[0016]

[Problem(s) to be Solved by the Invention]This invention is accomplished in view of the above-mentioned fact, and is a thing.

The purpose is to provide the image processing method and image processing device which can perform simulations, such as two color prints which use the special feature by low cost easily from the print data for lithographic plate printing of the document data in which the process color of \*\* was used, image data, etc.

[0017]

[Means for Solving the Problem]To achieve the above objects, this invention is an image processing method which performs image processing to image data or drawing data inputted from an image processing terminal, When color substitution and a replacement color are set up about either of the process colors on said image data or drawing data, Sexual desire news of said replacement color memorized beforehand is transposed to sexual desire news of an applicable process color on said image data or drawing data, and new sexual desire news is generated.

[0018]When substitution to a different color or other colors from a process color is set up in a process color of four colors of CMYK which forms a color picture according to this invention, Sexual desire news of an applicable color is transposed to sexual desire news of a replacement color memorized to a memory measure, or sexual desire news of a process color set up.

[0019]That is, a CMYK value which is the sexual desire news for every pixel of image data or drawing data is generated by transposing to a CMYK value which is the sexual desire news of a replacement color about any of CMYK they are.

[0020]Thus, since only sexual desire news is replaced, a variety of information of the original image data or drawing data is not spoiled. When performing image processing according to a processing demand from an image processing terminal, in order to perform color substitution, data management in an image processing terminal does not become complicated.

[0021]In an image processing method of such this invention, when color substitution and a replacement color are set up about each of two or more process colors on said image data or drawing data, New sexual desire news is generated by transposing sexual desire news of said replacement color memorized beforehand to sexual desire news of an applicable process color on said image data or drawing data, and compounding replaced sexual desire news.

[0022]In an image processing method of this invention, said replaced sexual desire news is compounded with sexual desire news of other process colors on said image data or drawing data, and new sexual desire news is generated.

[0023]Thereby, 2 color printing and 3 color printing using two or more special features and process colors become possible as well as monochrome printing specified as the special

feature.

[0024]In such this invention, also when performing a printing simulation since color correction becomes possible before compounding sexual desire news of a replacement color to other process colors except a process color as which color substitution is specified, a printout of a suitable color becomes possible.

[0025]An image processing device used for such an invention is provided with the following. An image processing means which is an image processing device which performs image processing to image data or drawing data inputted from an image processing terminal, and performs predetermined image processing to said image data or drawing data.

A memory measure which memorizes sexual desire news of a different replacement color from a process color set up beforehand.

When color substitution is set up about either of the process colors on said image data or drawing data, A permutation means which reads sexual desire news of a replacement color from said memory measure, and is transposed to sexual desire news of a process color of a replacing agency, and a creating means which generates the new sexual desire news of said image data or drawing data based on sexual desire news replaced by said permutation means.

[0026]According to this invention, an image processing means performs image processing based on image data or drawing data. When there is a color to which color substitution is set at this time, sexual desire news of a replacement color memorized to a memory measure is read, and it replaces with sexual desire news of a color as which color substitution is specified.

[0027]A creating means generates new sexual desire news next based on replaced sexual desire news. It enables it to perform color substitution by this, without spoiling various kinds of setting out to image data or drawing data.

[0028]When color substitution is set up with an image processing device of this invention about a process color of plurality [ permutation means / said ] on said image data or drawing data at this time, When reading sexual desire news of a replacement color from said memory measure and transposing to sexual desire news of each process color of a replacing agency, said creating means should just compound each sexual desire news replaced by said permutation means.

[0029]Said creating means should just compound sexual desire news replaced by said permutation means, and sexual desire news of other process colors on said image data or drawing data.

[0030]In an image processing device of such this invention, a setting-out means to choose or input and to set a replacement color sexual desire news is remembered to be from a process color on said image data or drawing data as a color which performs color substitution, and said memory measure can be included in said image processing terminal.

[0031]It can prevent with being able to set up color substitution easily from an image processing terminal by this, and data management on an image processing terminal becoming complicated.

[0032]In this invention, a color correction means to perform color correction to a process color on said image data or said drawing data is included, Said creating means compounds sexual desire news of a replacement color replaced by said permutation means, after performing color correction to other process colors on said image data or drawing data by said color correction means.

[0033]A proper printout is obtained, also when color reproduction nature can be raised and a printing simulation is performed by this. When a replacement color is a process color, together with a process color as which substitution is not specified, what is necessary is just made to perform color correction.

[0034]A field for an output where this invention furthermore stores sexual desire news of a replacement color in said image processing portion, A field for color correction which stores sexual desire news of a process color besides the above on said image data or drawing data is provided, Said color correction means performs color correction to sexual desire news stored in said field for color correction, They may be sexual desire news stored in said field for an output, and a thing to compound, When generating raster data for every process color by said image processing portion, based on sexual desire news of raster data of a process color in which said color substitution was set up, and said replacement color, raster data may be generated and it may compound with raster data of other colors of said process color.

[0035]It becomes possible to be able to perform color substitution and color correction in advance of creation of raster data, for example, to form a color picture in a recording form etc. by this.

[0036]

[Embodiment of the Invention]Hereafter, an embodiment of the invention is described, referring to drawings. The outline composition of the network 10 applied to this embodiment is shown in drawing 1. Network connection of the print server 12 provided as an image processing device with which this network 10 applied this invention, and two or more client terminals 14 provided as an image processing terminal is carried out via the communication line 16.

[0037]The printer 18 is connected to the print server 12 as a printout device, and the print server 12 will perform the printout according to this print job, if the print job outputted from the client terminal 14 is received.

[0038]Below, although explained using an image processing device as a print server, the image processing device of this invention may be formed in various kinds of intermediate servers, such as a file server by which network connection was carried out not only to this but to the client terminal 14, and may perform image processing. The plate setter who exposes a



photosensitive planographic printing plate etc. directly based on image data in order to create not only the printer 18 but the lithographic plate for printing, the exposure device which exposes the manuscript film used for picture printing (exposure) to a photosensitive planographic printing plate, etc. are also connectable.

[0039]As shown in drawing 2, the network interfaces (network I/F) 20 and 22 are formed in the print server 12 and the client terminal 14, and each has connected with the communication line 16 via this network I/F20 and 22. The print server 12 is provided with the bidirectional interfaces (bidirectional I/F) 24, such as Ethernet (R), and has connected them to the printer 18 via this bidirectional I/F24. Plurality may be sufficient as the printer 18 linked to this print server 12, and plurality thru/or two or more kinds may be sufficient also as bidirectional I/F24 to be used.

[0040]Two or more client terminals 14 and the network connection of the print server 12, Apple Talk (Apple Talk) and Ethernet (R) (Ethernet.) for example, Ethernet (R) Talk etc. -- etc. -- LAN (Local Area Network) connection may be applied, and WAN (Wide Area Network) connection may be applied. That is, connection by arbitrary network protocols is applicable.

[0041]Such a print server 12 can add and constitute the PCI board which equipped the personal computer (PC) with the predetermined function. The print server 12 is provided with display devices, such as input devices, such as a keyboard and a mouse, a CRT display, and an LCD display, and may be provided with the WYSIWYG function which carries out the printout of the processing and the display image to the picture displayed on the display device.

[0042]The image processing portion 28 is formed in the print server 12 with the printing controller 26 which controls the printer 18. The image processing portion 28 performs RIP processing which generates raster data based on job data inputted as a print job, such as image data and drawing data, from the client terminal 14.

[0043]In the print server 12, store the inputted print job in processor-limited cue, and. The print job stored in processor-limited cue is read in order, the data (raster data) which performs image processing (RIP processing), and image processing is carried out and is outputted to the printer 18 is stored in the waiting cue for printing, and it outputs to the printer 18 in order from this waiting cue for printing. In the print server 12, it has the general composition of storing in maintenance cue the job where the printing job is not specified or which cannot perform execution of a printing job, and holding it. Publicly known various composition can be conventionally used for such a print server 12, and it omits detailed explanation in this embodiment.

[0044]On the other hand, the client terminal 14 is provided with various kinds of applications 30, image processing, document preparation, etc., such as creation of a picture or a document, processing, and edit, are performed using the application 30, and creation of the print data for lithographic plate printing is possible. The client terminal 14 serves as ability ready for sending

to the print server 12 by making the created image data or drawing data, and various kinds of processing instruction into a print job.

[0045]If the print server 12 receives this print job, image processing specified to this print job will be performed, it will output to the printer 18, and the printed matter according to a print job will be made to be obtained.

[0046]If the print function set part 32 is formed and jobs, such as a print job, are received, various kinds of print functions specified by the print job will be set to the print server 12. Judge the print function specified by the print job, at the print server 12, by the print function set part 32, setting out of the publicly known print function is attained conventionally, set up so that each print function may be performed with the image processing portion 28 and the printer controller 26, but. According to this embodiment, detailed explanation is omitted.

[0047]By the way, the color substitution processing part 34 is formed in the print server 12. In this color substitution processing part 34, when replacement of a color set is set up to drawing objects by which color specification is carried out, such as a picture and a character, color substitution is performed based on setting out.

[0048]HD36 is provided in the print server 12 as a memory measure. the CMYK value for every special feature which two or more special features are set to the process color of cyanogen, magenta, yellow, and black another beforehand, and is set as HD36 in the print server 12 -- a table -- it-izing and memorizes.

[0049]If the color substitution to the special feature is specified for any of a process color they are, a CMYK value sets up and he is trying to update sexual desire news in the color substitution processing part 34 with reference to the CMYK value memorized by HD36 as a look-up table (LUT). That is, the sexual desire news of a new CMYK value is generated by compounding the CMYK value of the special feature to the CMYK value except the color as which color substitution was specified.

[0050]When the image data and document data for 2 color-print printing are created, for example using any 2 colors of the process colors, it enables it to carry out the printout of one color of them, or the two colors further by this using the different special feature from a process color. That is, when carrying out a printout using a lithographic plate, it is made possible [ a simulation when the printing job using different ink from a process color is performed ].

[0051]The field 38A for a CMYK output and the field 38B for CMYK color correction are formed on the memory 38 which is not illustrated in the image processing portion 28. In the image processing portion 28, when performing image processing to the picture (image object) on a print job, the CMYK value of the special feature is stored in the field 38A for a CMYK output. The CMYK value of the process color used on an applicable image object, As opposed to the CMYK value which is stored in the field 38B for CMYK color correction, and is stored in the CMYK color correction field 38B, After performing color correction, he generates the sexual

desire news of an applicable drawing object, and is trying to output by compounding the amended CMYK value to the CMYK value stored in the field 38A for a CMYK output.

[0052]Also when performing N color print simulation using the special feature, it is made possible [ in the image processing portion 28 / the color correction to the CMYK value which has not performed color substitution ] by this.

[0053]On the other hand, to each of the client terminal 14. The driver software 40 (printer driver) for setting up various kinds of print functions provided in the print server 12 is incorporated, and in the client terminal 14. When requesting the printing job to the image data and drawing instruction which were created with the application 30, etc., various kinds of print functions provided in the print server 12 can be set up by using the driver software 40.

[0054]Setting out of N color print simulation with which this driver software 40 is equipped as a function of the print server 12 is possible.

[0055]An example of the setting-out dialog 42 displayed as a user interface displayed on the monitor which the client terminal 14 does not illustrate with the driver software 40 is shown in drawing 3 (A). In this setting-out dialog 42, specification whether to perform N color print simulation is attained by checking the check box 44. That is, setting out of 1 color-print simulation (N= 1) - 4 color-print simulation (N= 4) is possible.

[0056]When performing N color print simulation, each of the process color of cyanogen, magenta, yellow, and black is received, Whether a printout is carried out and when carrying out a printout, specification of the color to replace can be chosen and specified on the combo boxes 46A, 46B, and 46C and 46D.

[0057]In these combo boxes 46A-46D, the list of each special features set up by each process color and the print server 12 of CMYK by the pull down menu is displayed, and it can be specified as which [ whether a printout is carried out and / in a list ] color. Here, by specifying it as which color, color substitution is performed so that the printout of the color applicable on the print server 12 may be carried out.

[0058]It may enable it to input the character string which means not only the special-feature name but a CMYK value as a color (replacement color) to specify. For example, it receives in the form etc. which were set to "=C10M20Y30K40", and replaces by black 40% of a color yellow 30% magenta 20% cyanogen 10% in this case.

[0059]On the setting-out dialog 42, the example specified that it replaces by the special feature 1 and the special feature 2 which are set up beforehand to each color of cyanogen and magenta, and performs two color prints is shown.

[0060]As such a user interface, the setting-out dialog 48 shown in drawing 3 (B) can also be used, for example. Specification of N color print simulation is omitted in this setting-out dialog 48, The combo boxes 52A, 52B, 52C, and 52D which are carrying out the check boxes 50A, 50B, 50C, and 50D which set up whether a printout is performed or not, and a replacement

color are formed to each of each color of a process color. In the setting-out dialog 48, as an example, cyanogen is carried out at the special feature 1, color substitution of the special feature 2 and the yellow is carried out for magenta at the special feature 3, and the example set up perform 3 color-print simulation is shown.

[0061]This user interface may be specified not only by the client terminal 14 but by the print server 12. At this time, what is necessary is just made to carry out by choosing the print job transmitted from the client terminal 14, and displaying the user interface of the setting-out dialog 42 and 48 grades on the monitor which is not illustrated.

[0062]Here, the outline of processing in case the print server 12 and the client terminal 14 which are constituted in this way perform N color print simulation is explained. By the print server 12, processing of the composite output for outputting to the printer 18 and the compositing process of the part version output for creating the lithographic plate for printing have become possible, and processing of a composite output is explained first.

[0063]In image processing devices, such as the print server 12, the composition provided with the color management system (CMS) which newly changes the CMYK value of a drawing object into a CMYK value has become general, and when processing a composite output, this CMS can be used.

[0064]It explains as what performs color substitution as an example from here using the color management system with which the print server 12 is equipped.

[0065]In the network 10, the image data thru/or drawing instruction to which processing of creation, processing, edit, etc. was carried out with the client terminal 14 using the application 30 is outputted to the print server 12 as a print job. At this time, N color print simulation can be specified with the client terminal 14 using the driver software 40. When performing N color print simulation, specification of a replacement color is doubled and is performed. In the setting-out dialog 42, the color substitution between process colors, such as substitution from cyanogen to magenta, is also possible.

[0066]On the other hand, at the print server 12, reception of the job outputted from the client terminal 14 will perform reading and setting out of a print function by the print function set part 32 as this job is a print job. In the image processing portion 28, RIP processing which creates raster data from the image data or drawing instruction of a print job is performed.

[0067]The raster data generated by the image processing portion 28 are outputted to the printer 18 to predetermined timing. Thereby, the printer 18 performs the printout based on the image data or drawing instruction of the print job.

[0068]By the way, in the print server 12, color substitution to the color which is having each of the process color of CMYK specified is performed by specifying N color print simulation.

[0069]An example of the procedure of color substitution is shown in drawing 4. Here, in order to simplification M Explain, it shall be made to perform color substitution in the pixel unit of a

drawing object, and a CMYK value shall be stored in the field 38A for a CMYK output, and the field 38B for CMYK color correction by a pixel unit.

[0070]This flow chart will be performed if N color print is specified, first, is Step 100 and initializes the field 38B for CMYK color correction, it is Step 102, and it initializes the field 38A for a CMYK output, and it sets the color variable i to the first color in Step 104 (i= 0). The color variable i shows each color of CMYK, for example, in i= 0, C and i= 1 are set to M, i= 2 is set to Y, and i= 3 becomes K. Color name (i) shows the color of the color variable i.

[0071]Thus, an end of initial setting will read color substitution setting out (replacement color) to the color of the color variable i in Step 106.

[0072]At Step 108, it is judged next whether the read replacement color is the special feature. At this time, when a replacement color is not the special feature but a process color (any of CMYK are they?), a negative decision is carried out at Step 108, it shifts to Step 110, and a CMYK value is stored in the field 38B for CMYK color correction.

[0073]On the other hand, when a replacement color is the different special feature from a process color, an affirmation decision is carried out at Step 108, it shifts to Step 112, the CMYK value of the special feature specified from LUT memorized to HD36 is read, and a CMYK value is changed. That is, the CMYK value of the special feature specified is changed according to the concentration of an applicable pixel, etc.

[0074]The CMYK value changed and obtained is stored in the field 38A for a CMYK output.

[0075]At Step 114, \*\*\*\*\* the color variable i (i=i+1), and next in the following step 116. When it checks whether whether conversion of the replacement color to all the colors having been completed and the color variable i have amounted to 4 and there is a color which remains (< 4), an affirmation decision is carried out at Step 116, it shifts to Step 108, and the color substitution over the following color is started. To the color specified "It does not print", it shifts to Step 114, without saving a CMYK value.

[0076]Thus, if conversion to a replacement color is completed to all the four colors and a negative decision is carried out at Step 116, it will shift to Step 118 and predetermined color correction will be performed to the CMYK value stored in the field 38B for CMYK color correction. This color correction can apply a publicly known technique conventionally, and omits detailed explanation.

[0077]After the color correction of the CMYK value stored in the field 38B for CMYK color correction is completed, it shifts to Step 120 and the CMYK value which performed color correction is compounded with the CMYK value stored in the field 38A for a CMYK output.

[0078]Thus, since publicly known color correction can be conventionally performed to each color of CMYK which is not specified as the special feature by generating a CMYK value, proper color correction becomes possible, without affecting the special feature.

[0079]Since color substitution is not performed on the client terminal 14, the data management

in the client terminal 14 becomes very easy.

[0080]Not the processing in every pixel but the color substitution processing in the field collected on the drawing object put in block becomes possible by securing the field 38A for a CMYK output for two or more pixels, and the field 38B for CMYK color correction on the memory 38.

[0081]Conversion of the CMYK value of the special feature memorizes to HD36 the  $L^*a^*b^*$  value of \*\*\*\* and the 100% concentration of the special feature shown in Table 1, for example, and may be made to perform CMYK value conversion using this  $L^*a^*b^*$  value.

[0082]

[Table 1]

	L*値	a*値	b*値
特色1	42.89	74.25	-25.19
特色2	44.30	46.38	-6.17
...	...	...	...
特色N	59.75	-15.09	0.96

[0083]The outline when performing CMYK value conversion performed at Step 112 of the flow chart of drawing 4 using LUT shown in Table 1 is shown in drawing 5.

[0084]With this flow chart, it reads from LUT which has memorized the  $L^*a^*b^*$  value of the 100% concentration of the special feature specified to HD36 at the first step 130, and correction density is computed from the concentration value and density correction curve of an applicable pixel at the following step 132.

[0085]In Step 134, compute the  $L^*a^*b^*$  value which should be outputted from a correction density value and the  $L^*a^*b^*$  value of the special feature, and next in Step 136. The profile for output printers (for example, for the printers 18) is used, and it changes into a CMYK value, and stores in the field 38A for a CMYK output.

[0086]Conversion of the CMYK value to the special feature computes the CMYK value for every concentration stage to 0-255, and it may be made to read this CMYK value from HD36 according to the concentration of an applicable pixel for every special feature at the time shown in Table 2, for example.

[0087]

[Table 2]

	シアン	マゼンタ	イエロー	ブラック
0	0	0	0	0
1	0	1	1	0
...	...	...	...	...
255	122	255	100	100

[0088]Thus, when performing a composite output, replacement (color substitution) of a CMYK value can be performed for every drawing object by performing CMS during rasterizing. It may be made to perform color substitution by performing CMS in the case of a composite output to the rasterized raster data.

[0089]Next, the part version output is explained. Since image data or drawing data is disassembled and outputted to cyanogen, magenta, yellow, and black and CMS cannot be performed during rasterizing when performing the part version output, CMS is performed to the raster data generated by rasterizing.

[0090]On the other hand, when carrying out the part version output, in order of which color it is outputted changes with applications. For this reason, for example, a color name is judged from description of PostScript (PostScript).

[0091]That is, as shown in drawing 6, color determination can be performed by description which shows the color of the version under processing being one of description of PostScript like "%PlateColor:Cyan" at a comment field, and extracting this description.

[0092]The outline of color substitution when performing the compositing process of the part version output is shown in drawing 7. Since color substitution is performed to the part version output using raster data, the flow chart of drawing 7 can be applied also when processing a composite output. Raster (i) shows the address of the raster data of an applicable color with this flow chart, and field (i) for an output shows the address which stores raster data applicable in the field 38A for a CMYK output.

[0093]After rasterizing is completed, it is performed, by the first step 140, this flow chart initializes the field 38A for a CMYK output, at Step 142, sets up an order of the color name i to process with reference to replacement setting out, and sets the color variable i to the first color. When carrying out color substitution from a process color at a process color at this time, a substitution order is set up so that this color substitution may serve as the last. Since the field 38B for CMYK color correction is not used at the time of the part version output, this field can be assigned to the field 38A for a CMYK output.

[0094]Thus, an end of initial setting will read color substitution setting out (replacement color) to the color name i in Step 144.

[0095]At Step 146, judge next whether the read replacement color is the special feature, and when a replacement color is the different special feature from a process color, An affirmation decision is carried out at Step 146, it shifts to Step 148, the CMYK value of the special feature specified from LUT memorized to HD36 is read, and a CMYK value is changed from the pixel value of raster (i). That is, the CMYK value of the special feature specified is changed according to the concentration of an applicable pixel, etc.

[0096]The CMYK value changed and obtained is compounded to power range (i) in the field

38A for a CMYK output.

[0097]Raster (i) which performed color substitution is initialized in Step 150, and it updates to the following color name i at Step 152 next.

[0098]When the color set up to the color name i is not the special feature, a negative decision is carried out at Step 146, and it shifts to Step 154. That is, when the replacement color is set up for any of the process color instead of the special feature being, or when there is no specification of a replacement color, it shifts to Step 154.

[0099]In this step 154, the CMYK value of the process color set up is stored in a raster (0) - a raster (3), and it shifts to Step 156.

[0100]On the other hand, in Step 156, when it checks whether conversion of the replacement color to all the colors (color name i) has been completed and there is a color which remains, a negative decision is carried out at Step 156, it shifts to Step 146, and the color substitution over the following color is started. To the color specified "It does not print", it shifts to Step 152 from Step 146.

[0101]Thus, if conversion to a replacement color is completed to all the four colors and an affirmation decision is carried out at Step 156, it will shift to Step 158 and color correction will be performed to the CMYK value of raster (0) - (3). That is, color correction is performed to the process color which remains in raster (0) - (3).

[0102]At Step 160, raster (0) - (3) is compounded to power range (0) - (3), and the raster data of each color are generated next.

[0103]That is, when performing the part version output divided into each color of CMYK, in the print server 12, image data or drawing data is rasterized by the image processing portion 28, and the raster data of each color of C (cyanogen), M (magenta), Y (yellow), and K (black) are obtained. Usually, color correction is performed to the raster data of each color next.

[0104]On the other hand, when performing color substitution to the special feature. It changes into the CMYK value of the special feature to the raster data of an applicable color, The raster data of each color for the part version output are formed in the field for an output by generating the raster data of each color of CMYK and compounding the raster data of each color of CMYK amended next, and the raster data according to the CMYK value of the special feature.

[0105]For example, as shown in drawing 8 (A), when replacing C by the special feature 1 to the image data of two colors of C (cyanogen) and M (magenta), color correction is performed to the raster data of M. To the raster data of C, by changing based on the CMYK value of the special feature 1, color substitution is performed and each raster data of CMYK are generated.

[0106]The printout of two color prints of M and the special feature 1 can be obtained by outputting raster data for every color of CMYK next.

[0107]As shown in drawing 8 (B), when it replaces C by the special feature 1 to the image data



of the color of C and M and is specified that it replaces M by the special feature 2, to the raster data of C, it changes based on the CMYK value of the special feature 1, and each raster data of CMYK are generated. To the raster data of M, it changes based on the CMYK value of the special feature 2, and each raster data of CMYK are generated.

[0108]The printout of 2 color printing of the special feature 1 and the special feature 2 can be obtained by compounding and outputting the raster data of each color of such CMYK for every color.

[0109]Thus, since publicly known color correction can be conventionally performed to each color of CMYK which is not specified as the special feature by generating the raster data of each color of CMYK, proper color correction becomes possible, without affecting the special feature.

[0110]Also when two or more special features are specified, the generation of the raster data of CMYK based on the special feature specified becomes easy.

[0111]Since color substitution is not performed on the client terminal 14, the data management in the client terminal 14 becomes very easy.

[0112]This embodiment described above is not that of the peach which limits the composition of this invention. For example, when there is the image data or drawing data for two or more pages, it may be made to classify by color per page, although this embodiment explained that N color print simulation was performed per job.

[0113]Although this embodiment explained the processing to the image data or drawing data inputted into the print server 12 as a print job from the client terminal 14, This invention is not restricted to this, are the print server 12, an intermediate server, etc., and may generate the data for N color prints, or the data for N color print simulations.

[0114]In this embodiment, although explained to the print server 12 of the network 10 with the application of this invention, this invention cannot be restricted to this and can be applied to the image processing device of arbitrary composition of being connected to the network.

[0115]

[Effect of the Invention]Since the sexual desire news of the process color specified that the color substitution to the replacement color which has memorized sexual desire news is set up, and it cooks is replaced by the sexual desire news of a replacement color and he is trying to compound it with the sexual desire news of other colors according to this invention as explained above, Various kinds of information included in the original image data or drawing data is not spoiled. Various kinds of color correction can be performed to the process color to which color substitution is not set. Therefore, the outstanding effect that the printout of a suitable color can be obtained by easy operation compared with the former of setting up the color and replacement color of a replacing agency is acquired.

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**TECHNICAL FIELD**

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[Field of the Invention]This invention relates to an image processing method and an image processing device when outputting image data to the output unit which forms the picture according to the image data for process printing in a recording form.

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## PRIOR ART

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[Description of the Prior Art]DTP(Desktop Publishing)-ization has permeated as digitization in the field of a printing job. DTP on processing units, such as a personal computer and a workstation, By performing creation of a picture, processing, edit, etc., create a page layout and the film for exposing a printing plate based on this page layout is created, or it writes in (CEPS) and a printing plate directly, and the lithographic plate for printing is created (CPT:Computer to Plate).

[0003]On the other hand, when performing proofreading etc. in advance of printing using a actual lithographic plate, the printout of the page layout displayed on the monitor is carried out with printout devices, such as a page printer, using a WYSIWYG function etc.

[0004]By the way, in the usual color printing, although carried out using four colors (process color) of cyanogen, magenta, yellow, and black, it may be carried out using the ink of a color (it is hereafter considered as the "special feature") different if needed from a process color.

[0005]In order to hold down printing cost in recent years, two color prints may be performed. At this time, special effects may be acquired by using one color and the special feature in a process color, or making two colors into the special feature.

[0006]On the other hand, when creating the output data for two color prints on a client computer, even if it is going to use the special feature, on the application for the present DTP, it is almost the case which can specify crossing of the special feature, the special feature or the special feature, and a process color, and is not. For this reason, as for the data for two color prints, it is common to carry out a film output using two colors of a process color.

[0007]When using the process color, crossing of a color could also be specified easily, but since only the output in a process color was obtained when it outputs to the usual image processing device, it was difficult to check clearly what kind of result actual printed matter becomes.

[0008]In order to solve such a problem, on the client computer, conversion application is used

and the method of generating the data for an output check independently and carrying out a printout is used.

[0009]In this method, in the document data created, for example with DTP application, By changing the document of process color 2 color into the color near two colors using the special feature by extracting the pattern of the field where color information is defined, and rewriting color information, A color comp output which used the special feature is made to be obtained even from the document data created using process color 2 color.

[0010]However, using conversion application by the client computer side will create different data to a color comp output, and it will be complicated [ data management ]. Since the overprint and trapping information on source data will be lost if the data itself created with application is changed, simulations, such as overprint and trapping, cannot be performed.

[0011]On the other hand, the method of applying the special profile for 2 color prints to the management function of CMYK is indicated (for example, refer to patent documents 1.).

[0012]In this method, a color chart is actually printed using a lithographic plate using the color ink which is due to be used by two color prints, By measuring this color chart, create the profile for the special features (look-up table of  $CMYK-L^*a^*b^*$ ), and The profile for these special features, The profile for printers (look-up table of  $L^*a^*b^*-CMYK$ ) is used, and it is made to perform the simulation of a color print by realizing  $CMYK-C^*M^*Y^*K^*$  conversion using a color management function.

[0013]However, in this method, the color chart obtained with the combination of two colors to be used must be printed using actual color ink, the side color of that chart must be carried out, and a profile must be created. Whenever the preparing work of such a profile changes the color to be used, it must be performed, and in the first proof, creation of a new profile has a problem that a great labor, time, expense, etc. must be spent to change the special feature unlike the assumed result.

[0014]That is, in the method currently indicated with said patent documents 1, if the combination of the color to be used is changed, in order to obtain a proof, it will be equivalent to the case where a flat-display-case proofreading machine etc. are used, or the labor beyond it, time, expense, etc. will be needed.

[0015]

[Patent documents 1] JP,2000-62253,A

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**EFFECT OF THE INVENTION**

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[Effect of the Invention]He replaces the sexual desire news of the process color specified that the color substitution to the replacement color which has remembered by this invention that sexual desire news explained above is set up, and it cooks by the sexual desire news of a replacement color, and is trying to compound it with the sexual desire news of other colors. Therefore, various kinds of information included in the original image data or drawing data is not spoiled.

Various kinds of color correction can be performed to the process color to which color substitution is not set. Therefore, the outstanding effect that the printout of a suitable color can be obtained by easy operation compared with the former of setting up the color and replacement color of a replacing agency is acquired.

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**TECHNICAL PROBLEM**

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[Problem(s) to be Solved by the Invention]This invention is accomplished in view of the above-mentioned fact, and is a thing.

The purpose is to provide the image processing method and image processing device which can perform simulations, such as two color prints which use the special feature by low cost easily from the print data for lithographic plate printing of the document data in which the process color of \*\* was used, image data, etc.

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**MEANS**

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[Means for Solving the Problem]To achieve the above objects, this invention is an image processing method which performs image processing to image data or drawing data inputted from an image processing terminal, When color substitution and a replacement color are set up about either of the process colors on said image data or drawing data, Sexual desire news of said replacement color memorized beforehand is transposed to sexual desire news of an applicable process color on said image data or drawing data, and new sexual desire news is generated.

[0018]When substitution to a different color or other colors from a process color is set up in a process color of four colors of CMYK which forms a color picture according to this invention, Sexual desire news of an applicable color is transposed to sexual desire news of a replacement color memorized to a memory measure, or sexual desire news of a process color set up.

[0019]That is, a CMYK value which is the sexual desire news for every pixel of image data or drawing data is generated by transposing to a CMYK value which is the sexual desire news of a replacement color about any of CMYK they are.

[0020]Thus, since only sexual desire news is replaced, a variety of information of the original image data or drawing data is not spoiled. When performing image processing according to a processing demand from an image processing terminal, in order to perform color substitution, data management in an image processing terminal does not become complicated.

[0021]In an image processing method of such this invention, when color substitution and a replacement color are set up about each of two or more process colors on said image data or drawing data, New sexual desire news is generated by transposing sexual desire news of said replacement color memorized beforehand to sexual desire news of an applicable process color on said image data or drawing data, and compounding replaced sexual desire news.

[0022]In an image processing method of this invention, said replaced sexual desire news is



compounded with sexual desire news of other process colors on said image data or drawing data, and new sexual desire news is generated.

[0023]Thereby, 2 color printing and 3 color printing using two or more special features and process colors become possible as well as monochrome printing specified as the special feature.

[0024]In such this invention, also when performing a printing simulation since color correction becomes possible before compounding sexual desire news of a replacement color to other process colors except a process color as which color substitution is specified, a printout of a suitable color becomes possible.

[0025]An image processing device used for such an invention is provided with the following. An image processing means which is an image processing device which performs image processing to image data or drawing data inputted from an image processing terminal, and performs predetermined image processing to said image data or drawing data.

A memory measure which memorizes sexual desire news of a different replacement color from a process color set up beforehand.

When color substitution is set up about either of the process colors on said image data or drawing data, A permutation means which reads sexual desire news of a replacement color from said memory measure, and is transposed to sexual desire news of a process color of a replacing agency, and a creating means which generates the new sexual desire news of said image data or drawing data based on sexual desire news replaced by said permutation means.

[0026]According to this invention, an image processing means performs image processing based on image data or drawing data. When there is a color to which color substitution is set at this time, sexual desire news of a replacement color memorized to a memory measure is read, and it replaces with sexual desire news of a color as which color substitution is specified.

[0027]A creating means generates new sexual desire news next based on replaced sexual desire news. It enables it to perform color substitution by this, without spoiling various kinds of setting out to image data or drawing data.

[0028]When color substitution is set up with an image processing device of this invention about a process color of plurality [ permutation means / said ] on said image data or drawing data at this time, When reading sexual desire news of a replacement color from said memory measure and transposing to sexual desire news of each process color of a replacing agency, said creating means should just compound each sexual desire news replaced by said permutation means.

[0029]Said creating means should just compound sexual desire news replaced by said permutation means, and sexual desire news of other process colors on said image data or drawing data.

[0030]In an image processing device of such this invention, a setting-out means to choose or input and to set a replacement color sexual desire news is remembered to be from a process color on said image data or drawing data as a color which performs color substitution, and said memory measure can be included in said image processing terminal.

[0031]It can prevent with being able to set up color substitution easily from an image processing terminal by this, and data management on an image processing terminal becoming complicated.

[0032]In this invention, a color correction means to perform color correction to a process color on said image data or said drawing data is included, Said creating means compounds sexual desire news of a replacement color replaced by said permutation means, after performing color correction to other process colors on said image data or drawing data by said color correction means.

[0033]A proper printout is obtained, also when color reproduction nature can be raised and a printing simulation is performed by this. When a replacement color is a process color, together with a process color as which substitution is not specified, what is necessary is just made to perform color correction.

[0034]A field for an output where this invention furthermore stores sexual desire news of a replacement color in said image processing portion, A field for color correction which stores sexual desire news of a process color besides the above on said image data or drawing data is provided, Said color correction means performs color correction to sexual desire news stored in said field for color correction, They may be sexual desire news stored in said field for an output, and a thing to compound, When generating raster data for every process color by said image processing portion, based on sexual desire news of raster data of a process color in which said color substitution was set up, and said replacement color, raster data may be generated and it may compound with raster data of other colors of said process color.

[0035]It becomes possible to be able to perform color substitution and color correction in advance of creation of raster data, for example, to form a color picture in a recording form etc. by this.

[0036]

[Embodiment of the Invention]Hereafter, an embodiment of the invention is described, referring to drawings. The outline composition of the network 10 applied to this embodiment is shown in drawing 1. Network connection of the print server 12 provided as an image processing device with which this network 10 applied this invention, and two or more client terminals 14 provided as an image processing terminal is carried out via the communication line 16.

[0037]The printer 18 is connected to the print server 12 as a printout device, and the print server 12 will perform the printout according to this print job, if the print job outputted from the client terminal 14 is received.

[0038]Below, although explained using an image processing device as a print server, the image processing device of this invention may be formed in various kinds of intermediate servers, such as a file server by which network connection was carried out not only to this but to the client terminal 14, and may perform image processing. The plate setter who exposes a photosensitive planographic printing plate etc. directly based on image data in order to create not only the printer 18 but the lithographic plate for printing, the exposure device which exposes the manuscript film used for picture printing (exposure) to a photosensitive planographic printing plate, etc. are also connectable.

[0039]As shown in drawing 2, the network interfaces (network I/F) 20 and 22 are formed in the print server 12 and the client terminal 14, and each has connected with the communication line 16 via this network I/F20 and 22. The print server 12 is provided with the bidirectional interfaces (bidirectional I/F) 24, such as Ethernet (R), and has connected them to the printer 18 via this bidirectional I/F24. Plurality may be sufficient as the printer 18 linked to this print server 12, and plurality thru/or two or more kinds may be sufficient also as bidirectional I/F24 to be used.

[0040]Two or more client terminals 14 and the network connection of the print server 12, Apple Talk (Apple Talk) and Ethernet (R) (Ethernet.) for example, Ethernet (R) Talk etc. -- etc. -- LAN (Local Area Network) connection may be applied, and WAN (Wide Area Network) connection may be applied. That is, connection by arbitrary network protocols is applicable.

[0041]Such a print server 12 can add and constitute the PCI board which equipped the personal computer (PC) with the predetermined function. The print server 12 is provided with display devices, such as input devices, such as a keyboard and a mouse, a CRT display, and an LCD display, and may be provided with the WYSIWYG function which carries out the printout of the processing and the display image to the picture displayed on the display device.

[0042]The image processing portion 28 is formed in the print server 12 with the printing controller 26 which controls the printer 18. The image processing portion 28 performs RIP processing which generates raster data based on job data inputted as a print job, such as image data and drawing data, from the client terminal 14.

[0043]In the print server 12, store the inputted print job in processor-limited cue, and. The print job stored in processor-limited cue is read in order, the data (raster data) which performs image processing (RIP processing), and image processing is carried out and is outputted to the printer 18 is stored in the waiting cue for printing, and it outputs to the printer 18 in order from this waiting cue for printing. In the print server 12, it has the general composition of storing in maintenance cue the job where the printing job is not specified or which cannot perform execution of a printing job, and holding it. Publicly known various composition can be conventionally used for such a print server 12, and it omits detailed explanation in this embodiment.

[0044]On the other hand, the client terminal 14 is provided with various kinds of applications 30, image processing, document preparation, etc., such as creation of a picture or a document, processing, and edit, are performed using the application 30, and creation of the print data for lithographic plate printing is possible. The client terminal 14 serves as ability ready for sending to the print server 12 by making the created image data or drawing data, and various kinds of processing instruction into a print job.

[0045]If the print server 12 receives this print job, image processing specified to this print job will be performed, it will output to the printer 18, and the printed matter according to a print job will be made to be obtained.

[0046]If the print function set part 32 is formed and jobs, such as a print job, are received, various kinds of print functions specified by the print job will be set to the print server 12. Judge the print function specified by the print job, at the print server 12, by the print function set part 32, setting out of the publicly known print function is attained conventionally, set up so that each print function may be performed with the image processing portion 28 and the printer controller 26, but. According to this embodiment, detailed explanation is omitted.

[0047]By the way, the color substitution processing part 34 is formed in the print server 12. In this color substitution processing part 34, when replacement of a color set is set up to drawing objects by which color specification is carried out, such as a picture and a character, color substitution is performed based on setting out.

[0048]HD36 is provided in the print server 12 as a memory measure. the CMYK value for every special feature which two or more special features are set to the process color of cyanogen, magenta, yellow, and black another beforehand, and is set as HD36 in the print server 12 -- a table -- it-izing and memorizes.

[0049]If the color substitution to the special feature is specified for any of a process color they are, a CMYK value sets up and he is trying to update sexual desire news in the color substitution processing part 34 with reference to the CMYK value memorized by HD36 as a look-up table (LUT). That is, the sexual desire news of a new CMYK value is generated by compounding the CMYK value of the special feature to the CMYK value except the color as which color substitution was specified.

[0050]When the image data and document data for 2 color-print printing are created, for example using any 2 colors of the process colors, it enables it to carry out the printout of one color of them, or the two colors further by this using the different special feature from a process color. That is, when carrying out a printout using a lithographic plate, it is made possible [ a simulation when the printing job using different ink from a process color is performed ].

[0051]The field 38A for a CMYK output and the field 38B for CMYK color correction are formed on the memory 38 which is not illustrated in the image processing portion 28. In the image processing portion 28, when performing image processing to the picture (image object) on a

print job, the CMYK value of the special feature is stored in the field 38A for a CMYK output. The CMYK value of the process color used on an applicable image object, As opposed to the CMYK value which is stored in the field 38B for CMYK color correction, and is stored in the CMYK color correction field 38B, After performing color correction, he generates the sexual desire news of an applicable drawing object, and is trying to output by compounding the amended CMYK value to the CMYK value stored in the field 38A for a CMYK output.

[0052]Also when performing N color print simulation using the special feature, it is made possible [ in the image processing portion 28 / the color correction to the CMYK value which has not performed color substitution ] by this.

[0053]On the other hand, to each of the client terminal 14. The driver software 40 (printer driver) for setting up various kinds of print functions provided in the print server 12 is incorporated, and in the client terminal 14. When requesting the printing job to the image data and drawing instruction which were created with the application 30, etc., various kinds of print functions provided in the print server 12 can be set up by using the driver software 40.

[0054]Setting out of N color print simulation with which this driver software 40 is equipped as a function of the print server 12 is possible.

[0055]An example of the setting-out dialog 42 displayed as a user interface displayed on the monitor which the client terminal 14 does not illustrate with the driver software 40 is shown in drawing 3 (A). In this setting-out dialog 42, specification whether to perform N color print simulation is attained by checking the check box 44. That is, setting out of 1 color-print simulation (N= 1) - 4 color-print simulation (N= 4) is possible.

[0056]When performing N color print simulation, each of the process color of cyanogen, magenta, yellow, and black is received, Whether a printout is carried out and when carrying out a printout, specification of the color to replace can be chosen and specified on the combo boxes 46A, 46B, and 46C and 46D.

[0057]In these combo boxes 46A-46D, the list of each special features set up by each process color and the print server 12 of CMYK by the pull down menu is displayed, and it can be specified as which [ whether a printout is carried out and / in a list ] color. Here, by specifying it as which color, color substitution is performed so that the printout of the color applicable on the print server 12 may be carried out.

[0058]It may enable it to input the character string which means not only the special-feature name but a CMYK value as a color (replacement color) to specify. For example, it receives in the form etc. which were set to "=C10M20Y30K40", and replaces by black 40% of a color yellow 30% magenta 20% cyanogen 10% in this case.

[0059]On the setting-out dialog 42, the example specified that it replaces by the special feature 1 and the special feature 2 which are set up beforehand to each color of cyanogen and magenta, and performs two color prints is shown.

[0060]As such a user interface, the setting-out dialog 48 shown in drawing 3 (B) can also be used, for example. Specification of N color print simulation is omitted in this setting-out dialog 48, The combo boxes 52A, 52B, 52C, and 52D which are carrying out the check boxes 50A, 50B, 50C, and 50D which set up whether a printout is performed or not, and a replacement color are formed to each of each color of a process color. In the setting-out dialog 48, as an example, cyanogen is carried out at the special feature 1, color substitution of the special feature 2 and the yellow is carried out for magenta at the special feature 3, and the example set up perform 3 color-print simulation is shown.

[0061]This user interface may be specified not only by the client terminal 14 but by the print server 12. At this time, what is necessary is just made to carry out by choosing the print job transmitted from the client terminal 14, and displaying the user interface of the setting-out dialog 42 and 48 grades on the monitor which is not illustrated.

[0062]Here, the outline of processing in case the print server 12 and the client terminal 14 which are constituted in this way perform N color print simulation is explained. By the print server 12, processing of the composite output for outputting to the printer 18 and the compositing process of the part version output for creating the lithographic plate for printing have become possible, and processing of a composite output is explained first.

[0063]In image processing devices, such as the print server 12, the composition provided with the color management system (CMS) which newly changes the CMYK value of a drawing object into a CMYK value has become general, and when processing a composite output, this CMS can be used.

[0064]It explains as what performs color substitution as an example from here using the color management system with which the print server 12 is equipped.

[0065]In the network 10, the image data thru/or drawing instruction to which processing of creation, processing, edit, etc. was carried out with the client terminal 14 using the application 30 is outputted to the print server 12 as a print job. At this time, N color print simulation can be specified with the client terminal 14 using the driver software 40. When performing N color print simulation, specification of a replacement color is doubled and is performed. In the setting-out dialog 42, the color substitution between process colors, such as substitution from cyanogen to magenta, is also possible.

[0066]On the other hand, at the print server 12, reception of the job outputted from the client terminal 14 will perform reading and setting out of a print function by the print function set part 32 as this job is a print job. In the image processing portion 28, RIP processing which creates raster data from the image data or drawing instruction of a print job is performed.

[0067]The raster data generated by the image processing portion 28 are outputted to the printer 18 to predetermined timing. Thereby, the printer 18 performs the printout based on the image data or drawing instruction of the print job.

[0068]By the way, in the print server 12, color substitution to the color which is having each of the process color of CMYK specified is performed by specifying N color print simulation.

[0069]An example of the procedure of color substitution is shown in drawing 4. Here, in order to simplification M Explain, it shall be made to perform color substitution in the pixel unit of a drawing object, and a CMYK value shall be stored in the field 38A for a CMYK output, and the field 38B for CMYK color correction by a pixel unit.

[0070]This flow chart will be performed if N color print is specified, first, is Step 100 and initializes the field 38B for CMYK color correction, it is Step 102, and it initializes the field 38A for a CMYK output, and it sets the color variable i to the first color in Step 104 (i= 0). The color variable i shows each color of CMYK, for example, in i= 0, C and i= 1 are set to M, i= 2 is set to Y, and i= 3 becomes K. Color name (i) shows the color of the color variable i.

[0071]Thus, an end of initial setting will read color substitution setting out (replacement color) to the color of the color variable i in Step 106.

[0072]At Step 108, it is judged next whether the read replacement color is the special feature. At this time, when a replacement color is not the special feature but a process color (any of CMYK are they?), a negative decision is carried out at Step 108, it shifts to Step 110, and a CMYK value is stored in the field 38B for CMYK color correction.

[0073]On the other hand, when a replacement color is the different special feature from a process color, an affirmation decision is carried out at Step 108, it shifts to Step 112, the CMYK value of the special feature specified from LUT memorized to HD36 is read, and a CMYK value is changed. That is, the CMYK value of the special feature specified is changed according to the concentration of an applicable pixel, etc.

[0074]The CMYK value changed and obtained is stored in the field 38A for a CMYK output.

[0075]At Step 114, \*\*\*\*\* the color variable i (i=i+1), and next in the following step 116. When it checks whether whether conversion of the replacement color to all the colors having been completed and the color variable i have amounted to 4 and there is a color which remains (< 4), an affirmation decision is carried out at Step 116, it shifts to Step 108, and the color substitution over the following color is started. To the color specified "It does not print", it shifts to Step 114, without saving a CMYK value.

[0076]Thus, if conversion to a replacement color is completed to all the four colors and a negative decision is carried out at Step 116, it will shift to Step 118 and predetermined color correction will be performed to the CMYK value stored in the field 38B for CMYK color correction. This color correction can apply a publicly known technique conventionally, and omits detailed explanation.

[0077]After the color correction of the CMYK value stored in the field 38B for CMYK color correction is completed, it shifts to Step 120 and the CMYK value which performed color correction is compounded with the CMYK value stored in the field 38A for a CMYK output.

[0078] Thus, since publicly known color correction can be conventionally performed to each color of CMYK which is not specified as the special feature by generating a CMYK value, proper color correction becomes possible, without affecting the special feature.

[0079] Since color substitution is not performed on the client terminal 14, the data management in the client terminal 14 becomes very easy.

[0080] Not the processing in every pixel but the color substitution processing in the field collected on the drawing object put in block becomes possible by securing the field 38A for a CMYK output for two or more pixels, and the field 38B for CMYK color correction on the memory 38.

[0081] Conversion of the CMYK value of the special feature memorizes to HD36 the  $L^*a^*b^*$  value of \*\*\*\* and the 100% concentration of the special feature shown in Table 1, for example, and may be made to perform CMYK value conversion using this  $L^*a^*b^*$  value.

[0082]

[Table 1]

	L*値	a*値	b*値
特色1	42.89	74.25	-25.19
特色2	44.30	46.38	-6.17
...	...	...	...
特色N	59.75	-15.09	0.95

[0083] The outline when performing CMYK value conversion performed at Step 112 of the flow chart of drawing 4 using LUT shown in Table 1 is shown in drawing 5.

[0084] With this flow chart, it reads from LUT which has memorized the  $L^*a^*b^*$  value of the 100% concentration of the special feature specified to HD36 at the first step 130, and correction density is computed from the concentration value and density correction curve of an applicable pixel at the following step 132.

[0085] In Step 134, compute the  $L^*a^*b^*$  value which should be outputted from a correction density value and the  $L^*a^*b^*$  value of the special feature, and next in Step 136. The profile for output printers (for example, for the printers 18) is used, and it changes into a CMYK value, and stores in the field 38A for a CMYK output.

[0086] Conversion of the CMYK value to the special feature computes the CMYK value for every concentration stage to 0-255, and it may be made to read this CMYK value from HD36 according to the concentration of an applicable pixel for every special feature at the time shown in Table 2, for example.

[0087]

[Table 2]



	シアン	マゼンタ	イエロー	ブラック
0	0	0	0	0
1	0	1	1	0
...	...	...	...	...
255	122	255	100	100

[0088]Thus, when performing a composite output, replacement (color substitution) of a CMYK value can be performed for every drawing object by performing CMS during rasterizing. It may be made to perform color substitution by performing CMS in the case of a composite output to the rasterized raster data.

[0089]Next, the part version output is explained. Since image data or drawing data is disassembled and outputted to cyanogen, magenta, yellow, and black and CMS cannot be performed during rasterizing when performing the part version output, CMS is performed to the raster data generated by rasterizing.

[0090]On the other hand, when carrying out the part version output, in order of which color it is outputted changes with applications. For this reason, for example, a color name is judged from description of PostScript (PostScript).

[0091]That is, as shown in drawing 6, color determination can be performed by description which shows the color of the version under processing being one of description of PostScript like "%PlateColor:Cyan" at a comment field, and extracting this description.

[0092]The outline of color substitution when performing the compositing process of the part version output is shown in drawing 7. Since color substitution is performed to the part version output using raster data, the flow chart of drawing 7 can be applied also when processing a composite output. Raster (i) shows the address of the raster data of an applicable color with this flow chart, and field (i) for an output shows the address which stores raster data applicable in the field 38A for a CMYK output.

[0093]After rasterizing is completed, it is performed, by the first step 140, this flow chart initializes the field 38A for a CMYK output, at Step 142, sets up an order of the color name i to process with reference to replacement setting out, and sets the color variable i to the first color. When carrying out color substitution from a process color at a process color at this time, a substitution order is set up so that this color substitution may serve as the last. Since the field 38B for CMYK color correction is not used at the time of the part version output, this field can be assigned to the field 38A for a CMYK output.

[0094]Thus, an end of initial setting will read color substitution setting out (replacement color) to the color name i in Step 144.

[0095]At Step 146, judge next whether the read replacement color is the special feature, and when a replacement color is the different special feature from a process color, An affirmation decision is carried out at Step 146, it shifts to Step 148, the CMYK value of the special feature

specified from LUT memorized to HD36 is read, and a CMYK value is changed from the pixel value of raster (i). That is, the CMYK value of the special feature specified is changed according to the concentration of an applicable pixel, etc.

[0096]The CMYK value changed and obtained is compounded to power range (i) in the field 38A for a CMYK output.

[0097]Raster (i) which performed color substitution is initialized in Step 150, and it updates to the following color name i at Step 152 next.

[0098]When the color set up to the color name i is not the special feature, a negative decision is carried out at Step 146, and it shifts to Step 154. That is, when the replacement color is set up for any of the process color instead of the special feature being, or when there is no specification of a replacement color, it shifts to Step 154.

[0099]In this step 154, the CMYK value of the process color set up is stored in a raster (0) - a raster (3), and it shifts to Step 156.

[0100]On the other hand, in Step 156, when it checks whether conversion of the replacement color to all the colors (color name i) has been completed and there is a color which remains, a negative decision is carried out at Step 156, it shifts to Step 146, and the color substitution over the following color is started. To the color specified "It does not print", it shifts to Step 152 from Step 146.

[0101]Thus, if conversion to a replacement color is completed to all the four colors and an affirmation decision is carried out at Step 156, it will shift to Step 158 and color correction will be performed to the CMYK value of raster (0) - (3). That is, color correction is performed to the process color which remains in raster (0) - (3).

[0102]At Step 160, raster (0) - (3) is compounded to power range (0) - (3), and the raster data of each color are generated next.

[0103]That is, when performing the part version output divided into each color of CMYK, in the print server 12, image data or drawing data is rasterized by the image processing portion 28, and the raster data of each color of C (cyanogen), M (magenta), Y (yellow), and K (black) are obtained. Usually, color correction is performed to the raster data of each color next.

[0104]On the other hand, when performing color substitution to the special feature. It changes into the CMYK value of the special feature to the raster data of an applicable color, The raster data of each color for the part version output are formed in the field for an output by generating the raster data of each color of CMYK and compounding the raster data of each color of CMYK amended next, and the raster data according to the CMYK value of the special feature.

[0105]For example, as shown in drawing 8 (A), when replacing C by the special feature 1 to the image data of two colors of C (cyanogen) and M (magenta), color correction is performed to the raster data of M. To the raster data of C, by changing based on the CMYK value of the special feature 1, color substitution is performed and each raster data of CMYK are generated.

[0106]The printout of two color prints of M and the special feature 1 can be obtained by outputting raster data for every color of CMYK next.

[0107]As shown in drawing 8 (B), when it replaces C by the special feature 1 to the image data of the color of C and M and is specified that it replaces M by the special feature 2, to the raster data of C, it changes based on the CMYK value of the special feature 1, and each raster data of CMYK are generated. To the raster data of M, it changes based on the CMYK value of the special feature 2, and each raster data of CMYK are generated.

[0108]The printout of 2 color printing of the special feature 1 and the special feature 2 can be obtained by compounding and outputting the raster data of each color of such CMYK for every color.

[0109]Thus, since publicly known color correction can be conventionally performed to each color of CMYK which is not specified as the special feature by generating the raster data of each color of CMYK, proper color correction becomes possible, without affecting the special feature.

[0110]Also when two or more special features are specified, the generation of the raster data of CMYK based on the special feature specified becomes easy.

[0111]Since color substitution is not performed on the client terminal 14, the data management in the client terminal 14 becomes very easy.

[0112]This embodiment described above is not that of the peach which limits the composition of this invention. For example, when there is the image data or drawing data for two or more pages, it may be made to classify by color per page, although this embodiment explained that N color print simulation was performed per job.

[0113]Although this embodiment explained the processing to the image data or drawing data inputted into the print server 12 as a print job from the client terminal 14, This invention is not restricted to this, are the print server 12, an intermediate server, etc., and may generate the data for N color prints, or the data for N color print simulations.

[0114]In this embodiment, although explained to the print server 12 of the network 10 with the application of this invention, this invention cannot be restricted to this and can be applied to the image processing device of arbitrary composition of being connected to the network.

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[Translation done.]

\* NOTICES \*

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- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
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- 3.In the drawings, any words are not translated.

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## DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1]It is an outline lineblock diagram of the network applied to this embodiment.

[Drawing 2]It is a block diagram of an important section showing the outline composition of a print server and a client terminal applied to this embodiment.

[Drawing 3](A) And (B) is a schematic diagram of a setting-out dialog showing an example of a user interface.

[Drawing 4]It is a flow chart showing the outline of color substitution over a composite output.

[Drawing 5]It is a flow chart showing the outline of CMYK value conversion.

[Drawing 6]It is a schematic diagram showing an example of description of PostScript form when performing the part version output.

[Drawing 7]It is a flow chart showing the outline of color substitution over the part version output.

[Drawing 8](A) And (B) is a schematic diagram showing the flow of processing of the part version output, (A) shows processing when performing 2 color-print simulation of the special feature 1 and M as an example, and (B) shows the outline of processing when performing 2 color-print simulation of the special feature 1 and the special feature 2.

[Description of Notations]

10 Print network

12 Print server (image processing device)

14 Client terminal (image processing terminal)

18 Printer

28 Image processing portion (an image processing means, a creating means, color correction means)

30 Application

34 Color substitution processing part (permutation means)

36 HD (memory measure)

38A The field for a CMYK output

38B The field for CMYK color correction

40 Printer driver

42 and 48 Setting-out dialog

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[Translation done.]

\* NOTICES \*

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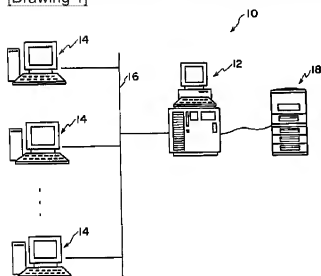
1. This document has been translated by computer. So the translation may not reflect the original precisely.
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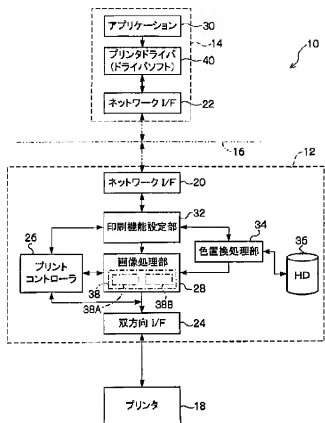
**DRAWINGS**

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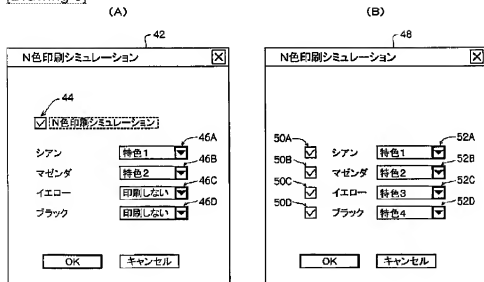
[Drawing 1]



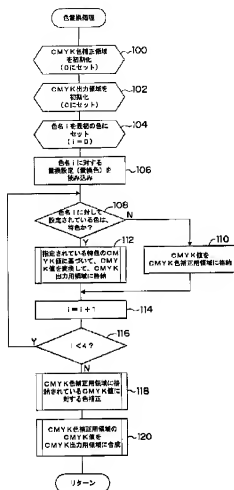
[Drawing 2]



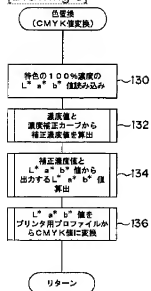
[Drawing 3]



[Drawing 4]



[Drawing 5]



[Drawing 6]

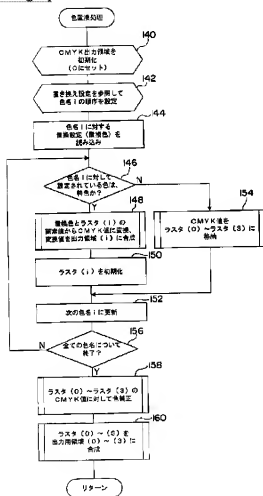


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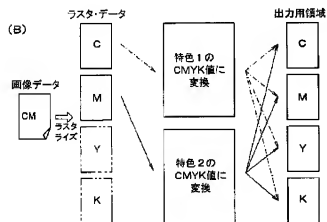
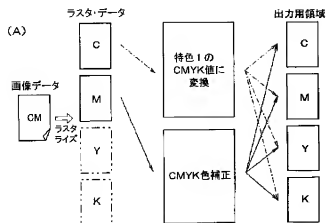
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%%BeginPageSetup
%RBIncludPageSlotInvocation
mTSsetup
pmsVsetup
initialzepage
( ページ: 1 / 2)setjob
%%EndPageSetup
gS 0 0 572 819 rC
1 G
0 0 0 0 rF
0 0 M
%%QRKSequentialPageRange: 1 1
%%QRKPageBegin: 1
%%QRKSequentialPage: 1
%%PlateColor: Cyan
QuarkXPress_4.1 begin
...

```

[Drawing 7]



[Drawing 8]



[Translation done.]

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H 0 4 N 1/60		1/40	D 5 C 0 7 9

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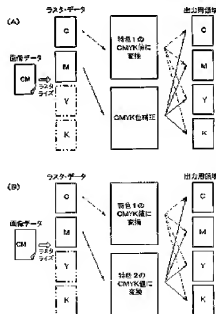
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(54) 【発明の名称】 画像処理方法及び画像処理装置

(57) 【要約】

【課題】 プロセッサと異なる特色を用いた2色印刷シミュレーションなどを行うときに、画像データ又は描画データに基づいた適正な印刷出力を可能とする。

【解決手段】 プロセッサの任意の色をプロセッサと異なる特色に色変換するときには、例えば、色変換が設定されたプロセッサのラスタデータと特色のCMYK値を用いてCMYK値の変換を行い、各色のラスタデータを生成し、このラスタデータと、各色ごとにプロセッサの残りの色ないし別に画成されたラスタデータと合成する。このときに、プロセッサの残りの色のラスタデータに対しては、色補正を行うことのできる低コストで適切な色の画像を形成することができる。



(2)

特開 2003-348366

2

【特許請求の範囲】

【請求項 1】 画像処理端末から入力される画像データ又は描画データに対する画像処理を行う画像処理方法であって、前記画像データ又は描画データ上のプロセッサの何れかについて色置換及び置換色が設定されているときに、予め記憶している前記置換色の色情報を、前記画像データ又は描画データ上の該当するプロセッサの色情報に置き換えて、新たな色情報を生成することを特徴とする画像処理方法。

【請求項 2】 前記画像データ又は描画データ上の複数のプロセッサのそれぞれについて色置換及び置換色が設定されているときに、予め記憶している前記置換色の色情報を、前記画像データ又は描画データ上の該当するプロセッサの色情報に置き換えて、置き換えた色情報を合成することにより新たな色情報を生成することを特徴とする請求項 1 に記載の画像処理方法。

【請求項 3】 前記置き換えた色情報を、前記画像データ又は描画データ上の他のプロセッサの色情報と合成して、新たな色情報を生成することを特徴とする請求項 1 又は請求項 2 に記載の画像処理方法。

【請求項 4】 画像処理端末から入力される画像データ又は描画データに対する画像処理を行う画像処理装置であって、前記画像データ又は描画データに所定の画像処理を施す画像処理手段と、

プロセッサと異なる予め設定されている置換色の色情報を記憶する記憶手段と

前記画像データ又は描画データ上のプロセッサの何れかについて色置換が設定されているときに、置換色の色情報を前記記憶手段から読み出して置換元のプロセッサの色情報に置き換える置換手段と、

前記置換手段によって置き換えた色情報に基づいて前記画像データ又は描画データの新たな色情報を生成する生成手段と、

を含むことを特徴とする画像処理装置。

【請求項 5】 前記置換手段が、前記画像データ又は描画データ上の複数のプロセッサについて色置換が設定されているときに、置換色の色情報を前記記憶手段から読み出して置換元のそれぞれのプロセッサの色情報に置き換えるときに、

前記生成手段が、前記置換手段によって置換されたそれぞれの色情報を合成することを特徴とする請求項 4 に記載の画像処理装置。

【請求項 6】 前記生成手段が、前記置換手段によって置換された色情報と、前記画像データ又は描画データ上の他のプロセッサの色情報とを合成することを特徴とする請求項 4 又は請求項 5 に記載の画像処理装置。

【請求項 7】 前記画像処理端末に、前記画像データ又は描画データ上のプロセッサから色置換を行う色及び前記記憶手段に色情報が記憶されている置換色を選択

若しくは入力して設定する設定手段を含むことを特徴とする請求項 4 から請求項 6 の何れか 1 項に記載の画像処理装置。

【請求項 8】 前記画像データ又は前記描画データ上のプロセッサに対する色補正を行う色補正手段を含み、

前記生成手段が、前記色補正手段によって前記画像データ又は描画データ上の他のプロセッサに対して色補正を行った後に、前記置換手段によって置き換えた置換色の色情報を合成することを特徴とする請求項 4 から請求項 7 の何れか 1 項に記載の画像処理装置。

【請求項 9】 前記画像処理装置に、置換色の色情報を格納する出力用領域と、前記画像データ又は描画データ上の前記他のプロセッサの色情報を格納する色補正用領域が設けられて、前記色補正手段によって前記色補正用領域に格納されている色情報に対して色補正を行って、前記出力用領域に格納している色情報と合成することを特徴とする請求項 8 に記載の画像処理装置。

【請求項 10】 前記画像処理装置でプロセッサごとラスタデータを生成する時に、前記置換色が設定されたプロセッサのラスタデータと前記置換色の色情報に基づいて、ラスタデータを生成して、前記プロセッサの他の色の色情報に基づいたラスタデータと合成することを特徴とする請求項 4 から請求項 9 の何れか 1 項に記載の画像処理装置。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、多色印刷用の画像データに応じた画像を記録媒体に形成する出力装置へ画像データを出力するときの画像処理方法及び画像処理装置に関する。

【0002】

【従来の技術】印刷処理の分野におけるデジタル化として、DTP (Desktop Publishing) 化が浸透している。DTP は、パーソナルコンピュータやワークステーション等の処理装置上で、画像の作成、加工、編集等を行うことによりページレイアウトを作成し、このページレイアウトに基づいて印刷版を露光するためのフィルムを作成を行ったり (CPS)、印刷版を直接書き込んで印刷用の印刷版を作成する (CTP: Computer to Plant)。

【0003】一方、実際の印刷を用いた印刷に先立って校正等を行うときには、WYSIWYG 編輯等を用いて、モニタに表示したページレイアウトを、ページプリンタ等の印刷出力装置によって印刷出力する。

【0004】ところで、通常のカラー印刷では、シアン、マゼンタ、イエロー及びブラックの 4 色 (プロセスカラー) を用いて行われるが、必要に応じてプロセッサと異なる色 (以下、「特色」とする) のインクを使用して行われることがある。

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【0005】近年、印刷コストを抑えるために、2色印刷が行われることが多くなった。このとき、プロセスカラーの中の1色と特色が用いられ、2色を特色とすることにより、特殊効果を得るようになることがある。

【0006】一方、2色印刷用の出力データをクライアントコンピュータ上で作成する際に特色を使用し、としても、現状のDTP用のアプリケーション上では、特色と特色又は特色とプロセスカラーの掛け合わせを指定することができないものが殆どである。このために、2色印刷用のデータは、プロセスカラーの2色を使用してフィルム出力するのが一般的となっている。

【0007】プロセスカラーを使用すれば色の掛け合わせも容易に指定することができるが、通常の画像処理装置に出力したときに、プロセスカラーでの出力しか得られないため、実際の印刷物がどのような仕上がりになるのかを明確に確認することが困難となっていた。

【0008】このような問題を解決するために、クライアントコンピュータ上で、変換アプリケーションを使用して、出力用データ用のデータを別に生成して、印刷出力する方法が用いられている。

【0009】この方法では、例えばDTPアプリケーションによって作成した文書データ中で、カラーデータが定義されている領域のパターンを抽出してカラーデータを書き換えることによりプロセスカラー2色の文書を、特色を用いた2色に近い色に変換することにより、プロセスカラー2色を使用して作成した文書データからでも、特色を使用したようなカラーガンブ出力が得られるようになる。

【0010】しかしクライアントコンピュータ間で変換アプリケーションを利用することは、カラーガンブ出力用に別データを作成することになり、データ管理が煩雑になってしまう。また、アプリケーションで作成したデータ自体を変換してしまうと、元データのオーバープリントやトラッピング情報が失われてしまうので、オーバープリントやトラッピング等のシミュレーションを行うことができない。

【0011】これに対して、CMYKのマネージメント機能に、2色印刷用の特別なプロファイルを採用する方法が開示されている（例えば、特許文庫1参照。）。

【0012】この方法では、2色印刷で使用する予定の特色インクを使用して実際に印刷を用いてカラーチャートの印刷を行い、このカラーチャートを測定することにより特色用のプロファイル（CMYK-L\*a\*b\*のルックアップテーブル）を作成し、この特色用のプロファイルと、プリンタ用のプロファイル（L\*a\*b\*-C\* M\* Y\* K\* のルックアップテーブル）を使用して、カラーマネージメント機能を用いたCMYK-C\* M\* Y\* K\* 変換を実現することにより特色印刷のシミュレーションを行うようにしている。

【0013】しかしながら、この方法では、使用する2

色の組み合わせによって得られるカラーチャートを実際の特色インクを使用して印刷を行い、そのチャートを側して、プロファイルを作成しなければならない。このようなプロファイルの作成作業は、使用する色を変更するたびに行わなければならない、最終の校正刷りでは、想定した仕上がりとは違い、特色を変更しない場合には、新たなプロファイルの作成に、多大な労力、時間、費用等を要さなければならないという問題がある。

【0014】すなわち、前記特許文庫1で開示されている方法では、使用する色の組み合わせを変更すると、校正刷りを得るために、平台校正機等を使用した場合と同等かそれ以上の労力、時間、費用等が必要となってしまう。

【0015】

【特許文庫1】特開2000-62253号公報

【0016】

【発明が解決しようとする課題】本発明は上記事実を鑑みて成されたものであり、例えば2色のプロセスカラーが用いられた文書データや画像データ等の印刷印刷用の印刷データから、容易にかつ低コストで特色を使用した2色印刷等のシミュレーションを行うことができる画像処理方法及び画像処理装置を提供することを目的とする。

【0017】

【課題を解決するための手段】上記目的を達成するため本発明は、画像処理端末から入力される画像データ又は縮図データに対する画像処理を行う画像処理方法であって、前記画像データ又は縮図データ上のプロセスカラーの何れかについて色置換及び置換色が設定されているときに、予め記憶している前記置換後の色情報と、前記画像データ又は縮図データ上の該当するプロセスカラーの色情報に置き換えて、新たな色情報を生成することを特徴とする。

【0018】この発明によれば、カラー画像を形成するCMYKの4色のプロセスカラーの中で、プロセスカラーと異なる色又は他の色への置換が設定されているときには、該当する色の色情報を記憶手段に記憶している置換後の色情報又は設定されているプロセスカラーの色情報に置き換える。

【0019】すなわち、CMYKの何れかを置換後の色情報であるCMYK値に置き換えることにより、画像データ又は縮図データの画素ごとの色情報であるCMYK値を生成する。

【0020】このように色情報のみを置換するので、元の画像データ又は縮図データの各画素情報が損なわれてしまうことがない。また、画像処理端末からの処理要求に応じて画像処理を行うときに、色置換を行うために、画像処理端末でのデータ管理が煩雑となってしまうことがない。

【0021】このような本発明の画像処理方法では、前

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記画像データ又は縮画データ上の複数のプロセッサのそれぞれについて色置換及び置換色が設定されているときに、予め記憶している前記置換色の色情報を、前記画像データ又は縮画データ上の該当するプロセッサの色情報に置き換えて、置き換えた色情報を合成することにより新たな色情報を生成する。

[0022] また、本発明の画像処理方法では、前記置換した色情報を、前記画像データ又は縮画データ上の他のプロセッサの色情報と合成して新たな色情報を生成する。

[0023] これにより、特色に指定された単色刷りは勿論、複数の特色やプロセッサを用いた2色刷り及び3色刷りが可能となる。

[0024] このような本発明では、色置換が指定されているプロセッサを除いた他のプロセッサに対しては、置換色の色情報を合成する前に、色補正が可能となるので、印刷シミュレーションを行うときにも、適切な色の印刷出力が可能となる。

[0025] このような発明に用いられる画像処理装置は、画像処理端末から入力される画像データ又は縮画データに対する画像処理を行う画像処理装置であって、前記画像データ又は縮画データに所定の画像処理を施す画像処理手段と、プロセッサと異なる予め設定されている置換色の色情報を記憶する記憶手段と、前記画像データ又は縮画データ上のプロセッサの何れかについて色置換が設定されているときに、置換色の色情報を前記記憶手段から読み出して置換元のプロセッサの色情報に置き換える置換手段と、前記置換手段によって置き換えた色情報に基づいて前記画像データ又は縮画データの新たな色情報を生成する生成手段と、を含むことを特徴とする。

[0026] この発明によれば、画像処理手段が、画像データ又は縮画データに基づいた画像処理を行う。このとき、色置換が設定されている色があるときには、記憶手段に記憶されている置換色の色情報を読み出して、色置換が指定されている他の色情報と置き換える。

[0027] この後に、生成手段が、置き換えた色情報に基づいて新たな色情報を生成する。これにより、画像データ又は縮画データに対する各種の設定を備えることなく、色置換を行うことができるようにしている。

[0028] このときに、本発明の画像処理装置では、前記置換手段が、前記画像データ又は縮画データ上の複数のプロセッサについて色置換が設定されているときに、置換色の色情報を前記記憶手段から読み出して置換元のそれぞれのプロセッサの色情報に置き換えるときに、前記生成手段が、前記置換手段によって置換されたそれぞれの色情報を合成するものであれば良い。

[0029] また、前記生成手段が、前記置換手段によって置換された色情報と、前記画像データ又は縮画データ上の他のプロセッサの色情報を合成するものであ

れば良い。

[0030] このような本発明の画像処理装置では、前記画像処理端末に、前記画像データ又は縮画データ上のプロセッサから色置換を行う色及び前記記憶手段に色情報が記憶されている置換色を選択若しくは入力して、置換する置換手段を含むことができる。

[0031] これにより、画像処理端末から簡単に色置換の設定を行うことができ、また、画像処理端末上のデータ管理が簡便となってしまうのを防止することができる。

[0032] また、本発明では、前記画像データ又は前記縮画データ上のプロセッサに対する色補正を行う色補正手段を含み、前記生成手段が、前記色補正手段によって前記画像データ又は縮画データ上の他のプロセッサに対して色補正を行った後に、前記置換手段によって置き換えた置換色の色情報を合成する。

[0033] これにより、色再現性を向上させることができ、印刷シミュレーションを行うときにも、適正な印刷出力が得られる。なお、置換色がプロセッサであるときには、置換が指定されていないプロセッサと合わせて色補正を行うようにすれば良い。

[0034] さらに本発明は、前記画像処理部に、置換色の色情報を格納する出力用領域と、前記画像データ又は縮画データ上の前記色置換のプロセッサの色情報を格納する色補正用領域が設けられて、前記色補正手段によって前記色補正用領域に格納されている色情報に対して色補正を行って、前記出力用領域に格納している色情報と合成するものであっても良く、また、前記画像処理部でプロセッサごととラスタデータを生成する際に、前記色置換が設定されたプロセッサのラスタデータと前記置換色の色情報に基づいて、ラスタデータを生成して、前記プロセッサの他のラスタデータと合成するものであっても良い。

[0035] これにより、ラスタデータの作成に先立って色置換及び色補正を行うことができ、例えば記録媒体にカラー画像を形成することが可能となる。

[0036]

【発明の実施の形態】以下、図面を参照しながら本発明の実施の形態を説明する。図1には、本実施の形態に適用したネットワーク10の概略構成を示している。このネットワーク10は、本発明を適用した画像処理装置として設けられているプリントサーバ12と、画像処理端末として設けられている複数のクライアント端末14とが、通信回線16を介してネットワーク接続されている。

[0037] また、プリントサーバ12には、印刷出力装置としてプリンタ18が接続されており、プリントサーバ12は、クライアント端末14から出力される印刷ジョブを受渡すると、この印刷ジョブに応じた印刷出力を実行する。

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【0038】なお、以下では、画像処理装置をプリントサーバとして用いて説明するが、本発明の画像処理装置はこれに限らずクライアント端末14とネットワーク接続されたファイルサーバ等の各種の中間サーバに設けて画像処理を行なうものであっても良い。また、プリンタ18に限らず、印刷用の版を作成するために画像データに基づいて感光性平版印刷版等を直接露光するプレートセッターや、感光性平版印刷版への画像焼付（露光）に用いる原稿フィルムを露光する露光装置等を接続することもできる。

【0039】図2に示すように、プリントサーバ12及びクライアント端末14には、ネットワークインターフェイス（ネットワークI/F）20、22が設けられており、このネットワークI/F20、22を介してそれぞれが通信回線16に接続している。また、プリントサーバ12は、Ethernet（R）などの双方向インターフェイス（双方向I/F）24を備えており、この双方向I/F24を介してプリンタ18に接続している。このプリントサーバ12に接続するプリンタ18は複数でも良く、使用する双方向I/F24も複数ないし複数種類でも良い。

【0040】なお、複数のクライアント端末14とプリントサーバ12のネットワーク接続は、Apple Talk（AppleTalk）、Ethernet（R）、イーサネット、例えばEthernet（R）Talkなど等のLAN（Local Area Network）接続を適用してもよく、また、WAN（Wide Area Network）接続を適用してもよい。すなわち、任意のネットワークプロトコルによる接続を適用することができる。

【0041】このようなプリントサーバ12は、パーソナルコンピュータ（PC）に所定の機能を備えたPCポートを追加するなどして構成することができる。また、プリントサーバ12は、キーボード、マウス等の入力デバイスやCRTディスプレイやLCDディスプレイ等の表示デバイスを含んでおり、表示デバイスに表示した画像に対する処理及び表示画像を印刷出力するWYSIWYG機能を含んだものでもあっても良い。

【0042】プリントサーバ12には、プリンタ18を制御するプリントコントローラ26と共に画像処理部28が設けられている。画像処理部28は、クライアント端末14から印刷ジョブとして入力される画像データや描画データなどのジョブデータに基づいてラスターデータを生成するRIP処理を行なう。

【0043】また、プリントサーバ12では、入力された印刷ジョブを処理待ちキューに格納すると共に、処理待ちキューに格納している印刷ジョブを順に読み出して、画像処理（RIP処理）を実行し、画像処理されたプリンタ18へ出力されるデータ（ラスターデータ）を印刷待ちキューに格納して、この印刷待ちキューからプリンタ18へ順に出力する。また、プリントサーバ12で

は、印刷処理が指定されていないか印刷処理の実行がまだないジョブを保持キューに格納して保持する一時的構成となっている。なお、このようなプリントサーバ12は、従来公知の種々の構成を用いることができ、本発明の形態では、詳細な説明を省略する。

【0044】一方、クライアント端末14は、各種のアプリケーション30を備えており、アプリケーション30を用いて、画像や文書の作成、加工、編集等の画像処理や文書作成等を行い、印刷用の印刷データの作成が可能となっている。また、クライアント端末14は、作成した画像データ又は描画データと各種の処理指示とを印刷ジョブとしてプリントサーバ12へ送信可能となっている。

【0045】プリントサーバ12は、この印刷ジョブを受信すると、この印刷ジョブに対して指定された画像処理を施してプリンタ18へ出力し、印刷ジョブに記した印刷物が得られるようにしている。

【0046】また、プリントサーバ12には、印刷機能設定部32が設けられており、印刷ジョブ等のジョブを受信すると、印刷ジョブで指定されている各種の印刷機能の設定を行う。なお、プリントサーバ12では、従来公知の印刷機能の設定が可能となっており、印刷機能設定部32では、印刷ジョブで指定されている印刷機能を判断し、それぞれの印刷機能が画像処理部28及びプリントコントローラ26で実行されるように設定するが、本発明の形態では、詳細な説明を省略する。

【0047】ところで、プリントサーバ12には、色変換処理部34が設けられている。この色変換処理部34では、色指定されている画像や文書等の描画オブジェクトに対して、指定色の置き換えが設定されているときに、設定に基づいて色変換を行う。

【0048】また、プリントサーバ12には、記憶手段としてHDD36が設けられている。プリントサーバ12では、シアン、マゼンタ、イエロー、ブラックのプロセッサカラーと別に、予め選択の特色が設定されており、HDD36には、設定されている特色ごとのCMYK値がテーブル化されて記憶されている。

【0049】色変換処理部34では、プロセッサカラーの何れかが、特色への色変換が指定されていると、HDD36に記憶されているCMYK値をカラーアップテーブル（LUT）として参照して、CMYK値の設定して色情報を変更するようにしている。すなわち、色変換が指定された色を除いたCMYK値に特色のCMYK値を合成することにより、新たなCMYK値の色情報を生成する。

【0050】これにより、例えばプロセッサカラーのうちの何れか2色を用いて2色印刷用の印刷データや文書データを作成したときに、さらに、そのうちの1色又は2色を、プロセッサカラーとは異なる特色を用いて印刷出力することができるようにしている。すなわち、印刷

を用いて印刷出力するときに、プロセスカラーと異なるインクを用いた印刷処理を行ったときのシミュレーションが可能なようにしている。

【0051】画像処理部28には、図示しないメモリ38上にCMYK出力用領域38Aと、CMYK色補正用領域38Bが設けられている。画像処理部28では、印刷ジョブ上の画像（画像オブジェクト）に対する画像処理を行うとき、特色のCMYK値をCMYK出力用領域38Aに格納する。また、該当する画像オブジェクト上で使用されるプロセスカラーのCMYK値は、CMYK色補正用領域38Bに格納し、CMYK色補正領域38Bに格納しているCMYK値に対して、色補正を行った後に、補正したCMYK値をCMYK出力用領域38Aに格納しているCMYK値に合成することにより、該当する画像オブジェクトの色情報と生成して出力するようにしている。

【0052】これにより、画像処理部28では、特色を用いてN色印刷シミュレーションを行うときにも、色変換を施しているCMYK値に対する色補正が可能となるようにしている。

【0053】一方、クライアント端末14のそれぞれには、プリントサーバ12に設けられている各種の印刷機能の設定を行うためのドライバソフト40（プリンタドライバ）が組み込まれており、クライアント端末14では、アプリケーション30によって作成した画像データや縮図命令に対する印刷処理等の依頼を行うときに、ドライバソフト40を用いることにより、プリントサーバ12に設けられている各種の印刷機能の設定を行うことができるようにしている。

【0054】このドライバソフト40には、プリントサーバ12の機能として備えているN色印刷シミュレーションの設定が可能となっている。

【0055】図3（A）には、ドライバソフト40によってクライアント端末14の図示しないモニタに表示されるユーザインターフェイスとして表示される設定ダイアログ42の一例を示している。この設定ダイアログ42では、チェックボックス44をチェックすることにより、N色印刷シミュレーションを行うか否かの指定が可能となる。すなわち、1色印刷シミュレーション（N=1）～4色印刷シミュレーション（N=4）の設定が可能となっている。

【0056】N色印刷シミュレーションを行うときには、シアン、マゼンタ、イエロー及びブラックのプロセスカラーのそれぞれに対して、印刷出力するか否か及び印刷出力するときに変換する色の指定を、コンボボックス46A、46B、46C、46D上で選択して指定することができる。

【0057】このコンボボックス46A～46Dでは、プルダウンメニューによってCMYKの各プロセスカラー及びプリントサーバ12で設定されている各特色の

ストが表示され、印刷出力しないリスト内の何れかの色に指定することができる。ここで、何れかの色に指定することにより、プリントサーバ12上で該当する色が印刷出力されるように色変換が行われる。

【0058】また、指定する色（変換色）としては、特色名だけでなく、CMYK値を意味する文字列を入力できるようにしても良い。例えば、「C10M20Y30K40」とした形式などで受け付け、この場合には、シアン10%、マゼンタ20%、イエロー30%、ブラック40%の色に置換する。

【0059】なお、設定ダイアログ42上では、シアン、マゼンタの各色に対して、予め設定されている特色1、特色2に置換して2色印刷を行うように指定した例を示している。

【0060】このようなユーザインターフェイスとしては、例えば、図3（B）に示す設定ダイアログ48を用いることもできる。この設定ダイアログ48では、N色印刷シミュレーションの指定を省略して、プロセスカラーの各色のそれぞれに対して、印刷処理を行うか否かを設定するチェックボックス50A、50B、50C、50Dと置換色をしているコンボボックス52A、52B、52C、52Dが設けられている。なお、設定ダイアログ48では、一例として、シアンを特色1、マゼンタを特色2及びイエローを特色3に色変換して、3色印刷シミュレーションを行うように設定した例を示している。

【0061】なお、このユーザインターフェイスは、クライアント端末14のみならず、プリントサーバ12で指定するものであっても良い。このときには、クライアント端末14から送信された印刷ジョブを選択して、図示しないモニタに設定ダイアログ42、48等のユーザインターフェイスを表示して行うようにすれば良い。

【0062】ここで、このように構成されているプリントサーバ12およびクライアント端末14によってN色印刷シミュレーションを行うときの処理の流れを説明する。なお、プリントサーバ12では、プリンタ18へ出力するためのコンボボックス出力の処理と、印刷用の版頭を作成するための分版出力の合成処理が可能となっており、まず、コンボボックス出力の処理を説明する。

【0063】プリントサーバ12などの画像処理装置では、縮図オブジェクトのCMYK値を新たにCMYK値に変換するカラーマージメントシステム（CMS）を備えた構成が一般的となっており、コンボボックス出力の処理を行うときには、このCMSを使用することができる。

【0064】ここから、一例として、プリントサーバ12に備えられているカラーマージメントシステムを用いて色変換を行うものとして説明する。

【0065】ネットワーク10では、クライアント端末14で、アプリケーション30を用いて作成、加工、編



集等の処理が行われた画像データないし描画命令が印刷ジョブとしてプリントサーバ12へ出力される。このときクライアント端末14では、ドライバソフト40を用いてN色印刷シミュレーションを指定することができる。また、N色印刷シミュレーションを行うときには、最終色の指定を合わせて行う。なお、設定ダイアログ42では、シアンからマゼンタへの色変換等のプロセスカラーの間での色変換も可能となっている。

[0066] 一方、プリントサーバ12では、クライアント端末14から出力されたジョブを受信すると、このジョブが印刷ジョブであると、印刷機能設定部32で、印刷機種の読み込み及び設定を行う。また、画像処理部28では、印刷ジョブの画像データ又は描画命令からラスタータを作成するRIP処理を行う。

[0067] 画像処理部28で生成されたラスタータは、所定のタイミングでプリンタ18へ出力される。これにより、プリンタ18は、印刷ジョブの画像データ又は描画命令に基づいた印刷出力を行う。

[0068] ところで、プリントサーバ12では、N色印刷シミュレーションが指定されることにより、CMYKのプロセスカラーのそれぞれを指定されている色への色変換を行う。

[0069] 図4には、色変換の手順の一例を示している。なお、ここでは、説明を簡略化するために、描画オブジェクトの画素単位での色変換を行うようにし、CMYK出力用領域38A及びCMYK色補正用領域38Bには、画素単位でCMYK値が格納されるものとする。

[0070] このフローチャートは、N色印刷が指定されていると実行されて、まず、ステップ100で、CMYK色補正用領域38Bを初期化し、ステップ102で、CMYK出力用領域38Aを初期化すると共に、ステップ104では、色変数*i*を最初の色にセットする( $i=0$ )。なお、色変数*i*は、CMYKの各色を示し、例えば、 $i=0$ がC、 $i=1$ がM、 $i=2$ がY、 $i=3$ がKとなる。また、色名( $i$ )は、色変数*i*の色を示している。

[0071] このようにして初期設定を終了すると、ステップ106では、色変数*i*の色に対する色変換設定(変換色)を読み込む。

[0072] この後に、ステップ108では、読み込んだ変換色が特色であるか否かを判断する。このときに、変換色が特色でなくプロセスカラー(CMYKの何れか)であるときには、ステップ108で否定判定して、ステップ110へ移行し、CMYK値をCMYK色補正用領域38Bに格納する。

[0073] これに対して、変換色がプロセスカラーと

異なる特色であるときは、ステップ108で肯定判定してステップ112へ移行し、H D 36に記述しているLUTから指定されている特色のCMYK値を抽出し、CMYK値の変換を行う。すなわち、指定されている特色のCMYK値を、該当する画素の画素値に応じて変換する。

[0074] 変換して得たCMYK値は、CMYK出力用領域38Aに格納される。

[0075] この後に、ステップ114では、色変数*i*をインクリメント( $i=i+1$ )し、次のステップ116では、全ての色に対する変換色の変換が終了したか否か、すなわち、色変数*i*が4に達したか否かを確認し、残っている色があるとき( $i<4$ )には、ステップ116で肯定判定してステップ108へ移行し、次の色に対する色変換を開始する。なお、「印刷しない」と指定されている色に対しては、CMYK値を関係せずにステップ114へ移行する。

[0076] このようにして、4色のすべてに対して変換色への変換が終了してステップ116で否定判定されると、ステップ118へ移行して、CMYK色補正用領域38Bに格納しているCMYK値に対して所定の色補正を施す。なお、この色補正は、従来公知の手法を適用でき、詳細な説明を省略する。

[0077] CMYK色補正用領域38Bに格納しているCMYK値の色補正が完了すると、ステップ120へ移行し、色補正を施したCMYK値をCMYK出力用領域38Aに格納しているCMYK値と合成する。

[0078] このようにして、CMYK値を生成することにより、特色に指定していないCMYKの各色に対しては、従来公知の色補正を施すことができるので、特色に影響を与えようことなく適正な色補正が可能となる。

[0079] また、色変換は、クライアント端末14上で行うことができるので、クライアント端末14でのデータ管理が極めて簡便となる。

[0080] さらに、メモリ38上に、複数画素分のCMYK出力用領域38A及びCMYK色補正用領域38Bを確保することにより、1画素ごとの処理でなく、描画オブジェクト上でまとまった範囲内で一括した色変換処理が可能となる。

[0081] 特色のCMYK値の変換は、例えば、表1に示す如く、特色の100%濃度の「a」「b」値を、H D 36に記述して、この「a」「b」値を用いてCMYK値変換を行うようにしても良い。

[0082]

【表1】

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13	L*値	a*値	b*値
特色1	42.89	74.25	-25.19
特色2	44.30	46.08	-6.17
...	...	...	...
特色M	59.75	-15.09	0.96

【0083】図5には、図4のフローチャートのステップ112で実行されるCMYK色変換を表1に示すLUTを用いて実行するときの概略を示している。

【0084】このフローチャートでは、最初のステップ130で、指定されている特色の100%濃度のL\*a\*b\*値をHDB36に記憶しているLUTから読み込み、次のステップ132では、該当する画素の濃度値と濃度補正カーブから補正濃度を算出する。

【0085】この後に、ステップ134では、補正濃度値と特色のL\*a\*b\*値から出力すべきL\*a\*b\*値を算本

\*出し、ステップ136では、出力プリンタ用（例えばプリンタ18用）プロファイルを使用して、CMYK値に変換して、CMYK出力用領域38Aに格納する。

【0086】また、特色へのCMYK値の変換は、例えば、表2に示すとき、特色ごとに、0~255までの濃度段階ごとにCMYK値を算出しておいて、このCMYK値を、該当する画素の濃度に合わせてHDB36から読み出すようにしても良い。

【0087】  
[表2]

	シアン	マゼンタ	イエロー	ブラック
0	0	0	0	0
1	0	1	1	0
...	...	...	...	...
255	122	255	100	100

【0088】このように、コンボジット出力を行うときには、ラスライズ中にCMSを実行させることにより、描画オブジェクトごとにCMYK値の置き換え（色置換）を行うことができる。また、コンボジット出力の場合は、ラスライズされたラスターデータに対して、CMSを実行することにより色置換を行うようにしても良い。

【0089】次に、分版出力について説明する。分版出力を行うときには、描画データ又は描画データが、シアン、マゼンタ、イエロー、ブラックに分解されて出力されるのでラスライズ中にCMSを実行させることができなために、ラスライズによって生成されたラスターデータに対してCMSを実行させる。

【0090】一方、分版出力するときには、どの色の順序で出力されるかは、アプリケーションによって異なる。このために、例えば、ポストスクリプト（PostScript）の記述から色名を判断する。

【0091】すなわち、図6に示すように、ポストスクリプトの記述には、コメント欄に、「%%PlateColor: Cyan」などのように、処理中の版の色を示す記述があり、この記述を抽出することにより、色判定を行うことができる。

【0092】図7には、分版出力の合成処理を行う時の色置換の概略を示している。なお、分版出力に対しては、ラスターデータを用いて色置換を施すので、図7のフローチャートは、コンボジット出力の処理を行うときにも適用することができる。また、このフローチャートで、ラスター（i）は、該当する色のラスターデータのA

ドレスを示し、出力用領域（i）は、CMYK出力用領域38A内に該当するラスターデータを格納するアドレスを示す。

【0093】このフローチャートは、ラスライズが終了すると実行され、最初のステップ140では、CMYK出力用領域38Aを初期化し、ステップ142では、置き換え設定を参照して、処理する色名（i）の順序を設定し、色変数（i）を最初の色にセットする。このとき、プロセスカラーからプロセスカラーに色置換するときには、この色置換が最後となるように色置換順序を設定する。なお、分版出力時には、CMYK色値正用領域38Bを使用しないため、この領域をCMYK出力用領域38Aに割り当てることができる。

【0094】このようにして初期設定を終了すると、ステップ144では、色名（i）に対する色置換設定（置換色）を読み込む。

【0095】この後に、ステップ146では、読み込んだ置換色が特色であるかを判断し、置換色がプロセスカラーと異なる特色であるときには、ステップ146で決定判定してステップ148へ移行し、HDB36に記憶しているLUTから指定されている特色のCMYK値を読出し、ラスター（i）の画素値からCMYK値の変換を行う。すなわち、指定されている特色のCMYK値を、該当する画素の濃度等に応じて変換する。

【0096】変換して得たCMYK値は、CMYK出力用領域38A内の出力領域（i）に合成する。

【0097】この後に、ステップ150では、色置換を行ったラスター（i）を初期化し、ステップ152では、

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次の色名)に更新する。

[01098] また、色名1に対して設定されている色が特色でないときは、ステップ146で否定判定して、ステップ154へ移行する。すなわち、置換色が特色ではなくプロセスカラーの何れかに設定されているとき又は、置換色の指定がないときは、ステップ154へ移行する。

[01099] このステップ154では、設定されているプロセスカラーのCMYK値を、ラスタ(0)～ラスタ(3)へ転送して、ステップ156へ移行する。

[01100] 一方、ステップ156では、全ての色(色名1)に対する置換色の交換が終了したか否かを確認し、残っている色があるときには、ステップ156で否定判定してステップ146へ移行し、次の色に対する色置換を開始する。なお、「印刷しない」と指定されている色に対しては、ステップ146からステップ152へ移行する。

[01101] このようにして、4色のすべてに対して置換色への交換が終了してステップ156で否定判定されると、ステップ158へ移行して、ラスタ(0)～(3)のCMYK値に対して、色補正を施す。すなわち、ラスタ(0)～(3)に残っているプロセスカラーに対して色補正を施す。

[01102] この後に、ステップ160では、ラスタ(0)～(3)を出力領域(0)～(3)に合成して、各色のラスタデータを生成する。

[01103] すなわち、CMYKの各色に分ける分版出力を行うときに、プリントサーバ12では、画像データ又は描画データを画像処理部28でラスタライズして、C(シアン)、M(マゼンタ)、Y(イエロー)、K(ブラック)の各色のラスタデータを得る。通常は、この後に、各色のラスタデータに対して色補正を行う。

[01104] これに対して、特色への色置換を行うときには、該当する色のラスタデータに対して、特色のCMYK値へ交換して、CMYKの各色のラスタデータを生成し、この後に、補正したCMYKの各色のラスタデータと、特色のCMYK値に成したラスタデータを合成することにより、分版出力用の各色のラスタデータが出力用領域に形成される。

[01105] 例えば、図8(A)に示すように、C(シアン)、M(マゼンタ)の2色の画像データに対して、Cを特色1に置換するとともに、Mのラスタデータに対して色補正を施す。また、Cのラスタデータに対しては、特色1のCMYK値に基づいて交換することにより色置換を行い、CMYKの各ラスタデータを生成する。

[01106] この後に、CMYKの各色ごとにラスタデータを出力することにより、Mと特色1との2色印刷の印刷出力を得ることが出来る。

[01107] また、図8(B)に示すように、C、Mの色の画像データに対して、Cを特色1に置換すると共

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に、Mを特色2に置換するように指定されているときには、Cのラスタデータに対しては、特色1のCMYK値に基づいて交換し、CMYKの各ラスタデータを生成する。また、Mのラスタデータに対しては、特色2のCMYK値に基づいて交換して、CMYKの各ラスタデータを生成する。

[01108] これらのCMYKの各色のラスタデータを、それぞれの色毎に合成して出力することにより、特色1と特色2の2色刷りの印刷出力を得ることが出来る。

[01109] このようにしてCMYKの各色のラスタデータを生成することにより、特色に指定していないCMYKの各色に対しては、従来公知の色補正を施すことができるので、特色に影響を与えてしまうことなく適正な色補正が可能となる。

[01110] また、複数の特色が指定されているときにも、指定されている特色に基づいたCMYKのラスタデータの生成が容易となる。

[01111] また、色置換は、クライアント端末14上で行うことができるので、クライアント端末14でのデータ管理が極めて簡単となる。

[01112] なお、以上説明した本発明の形態は、本発明の構成を限定するものではない。例えば、本発明の形態では、ジョブ単位で、N色印刷シミュレーションを行うように説明したが、複数ページ分の画像データ又は描画データがあるときに、ページ単位で色分けするようにしても良い。

[01113] また、本発明の形態では、クライアント端末14から印刷ジョブとしてプリントサーバ11に入力された画像データ又は描画データに対する処理を説明したが、本発明は、これに限るものではなく、プリントサーバ12や中間サーバ等で、N色印刷用データ又はN色印刷シミュレーション用のデータの生成を行うものであっても良い。

[01114] さらに、本発明の形態では、ネットワーク10のプリントサーバ12に本発明を適用して説明したが、本発明はこれに限るものではなく、ネットワークに接続されている任意の構成の画像処理装置に適用することができる。

[01115]

[発明の効果] 以上説明したように本発明によれば、色情報と記憶している置換色への色置換が設定されたときに、指定されているプロセスカラーの色情報を、置換色の色情報に置換して、他の色の色情報と合成するようにしているので、元の画像データ又は描画データに含まれる各種の情報を損傷してしまうことがない。また、色置換が設定されていないプロセスカラーに対しては、各種の色補正を施すことができる。したがって、置換元の色と置換色を設定するという従来に比べて簡単な操作で、適切な色の印刷出力を得ることが出来るという優れた効果

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が得られる。

【図面の簡単な説明】

【図1】 本実施の形態に適用したネットワークの概略構成図である。

【図2】 本実施の形態に適用したプリントサーバとクライアント端末の概略構成を示す要部のブロック図である。

【図3】 (A)及び(B)はユーザインターフェイスの一例を示す設定ダイアログの概略図である。

【図4】 コンボジット出力に対する色変換の概略を示す流れ図である。

【図5】 CMYK値交換の概略を示す流れ図である。

【図6】 分版出力を行うときのPostScript形式の配速の一例を示す概略図である。

【図7】 分版出力に対する色変換の概略を示す流れ図である。

【図8】 (A)及び(B)は分版出力の処理の流れを示す概略図であり、(A)は一例として特色1とMの2

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\* 色印刷シミュレーションを行うときの処理を示し、

(B)は特色1と特色2の2色印刷シミュレーションを行うときの処理の概略を示している。

【符号の説明】

10 プリントネットワーク

12 プリントサーバ(画像処理装置)

14 クライアント端末(画像処理端末)

18 プリンタ

28 画像処理部(画像処理手段、生成手段、色補正

手段)

30 アプリケーション

34 色変換処理部(変換手段)

36 HD(記憶手段)

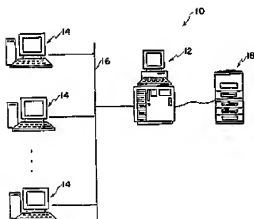
38A CMYK出力用領域

38B CMYK色補正用領域

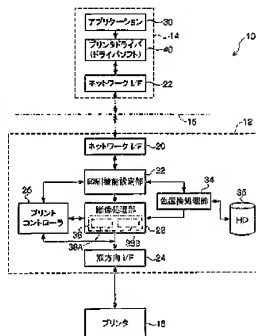
40 プリンタドライバ

42、48 設定ダイアログ

【図1】



【図2】

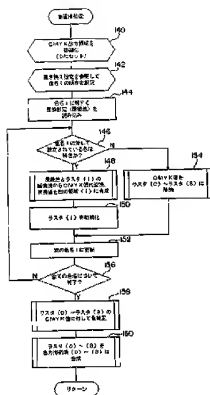




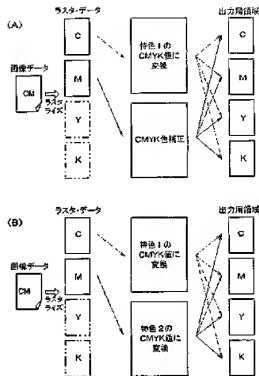
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【図7】



【図8】



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 5C079 HB03 HB08 HB12 KA04 LA02  
 LB01 PB01 PB04 PA03